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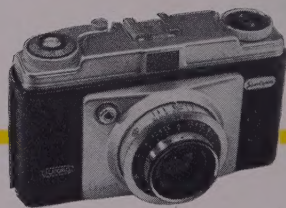
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Across the Antarctic Continent

by SIR VIVIAN FUCHS

Often in years to come the tale will be told how Sir Vivian Fuchs and his Commonwealth Expedition crossed the Antarctic Continent. The first telling was in his exclusive despatches to The Times. We are privileged to republish extracts from these covering the whole journey, but selected and arranged in a continuous narrative so as to bring out its most important and distinctive phases

An article in our September 1957 number described the task of the Advance Party in establishing Shackleton Base, on the edge of the Weddell Sea, and the hazards which attended that operation; as well as the work begun with the arrival of the Main Party in January 1957. These brought with them two aircraft, an Otter and an Auster, which enabled a site to be chosen for South Ice, the expedition's advance depot some 275 air-miles from Shackleton. As the Antarctic winter closed in, field activities ended on March 25, 1957, with the twentieth load-carrying flight to South Ice, where three men settled down in isolation to a strenuous programme of studies relative to weather, snow and ice.

Some aspects of winter at Shackleton were described by Dr Fuchs as follows.

After the flying was completed we at Shackleton busied ourselves with a number of tasks left undone while South Ice was being established. First the vehicle workshop had to be completed, for this with its lathe and other power-driven equipment is essential for the proper preparation of our ten vehicles for the journeys in the coming season. Each vehicle is being completely overhauled and tracks changed where necessary. Every nut and bolt throughout a vehicle receives attention.

Another task was to dig a long U-shaped tunnel eight feet high in which to house the dogs for the winter. At Shackleton the wind sweeps away the soft snow and packs the drift so hard that there is no natural shelter for the dogs. Also the temperatures may drop too low for them to be left in the open. In the tunnel the temperature remains between zero and -10° F., and they are in electric light instead of spending several months in darkness outside.

Much of our time has been spent digging, and almost any day at Shackleton a number of moving or stationary lights can be seen in the darkness or through the driving drift. The lights indicate activity where different items are being recovered from beneath the drift. Any box or other article which is left on the snow surface will, in a day or two, become drifted up to its top surface. So hard is this wind-blown crust that it is difficult to dig

with a shovel. We have come to accept this; since although to have to shovel the snow back into the hole from which it has just been dug is still an annoyance, it is necessary, for every pile of snow left on the surface will soon form another smooth mound gradually spreading outwards in every direction with the changing winds.

This formation of drifts on the formerly even snow surface is a constant menace. Anything—from the smallest piece of snow to the huts themselves—will raise the surface to its own height in a short time. In spite of all our precautions we are gradually becoming submerged, and the area half a mile long and a quarter of a mile wide which is occupied by our dispersed huts, vehicles, aircraft and stores, already forms the beginning of a low dome on top of the flat ice-shelf.

When settling in for the winter we had also to ensure the preservation of the aircraft, which had to remain in the open. Both were picketed facing into the prevailing southerly winds. Since the Auster is light enough to be moved from time to time as the drifts grow too great, it was left on the surface. The larger Otter required special preparation, for, once embedded in the snow, it could not be moved until the spring.

All through the winter we have had regular radio contact with the expedition's other base on the far side of the continent. There Sir Edmund Hillary and his New Zealand party have been preparing for their spring journeys. These weekly radio exchanges between the bases have let each party know what the other is doing and Hillary and I have been able to discuss future field operations. These contacts will become more and more important, particularly for siting depots and for weather information.

Between the Filchner Ice-Shelf on one side of the continent and the Ross Ice-Shelf on the other lies a vast plateau rising to more than 10,000 feet above sea-level. The ascent to, and descent from, this were expected to provide the worst obstacles; and so it proved. On October 8, 1957, a party with four



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(Above) Dr Fuchs digging out a tractor at Shackleton Base before setting off on the first—and most difficult—stage of the journey across Antarctica, that from the base to South Ice, the advance depot.

(Below) The Auster and Otter aircraft used to reconnoitre routes and transport men, dogs and stores

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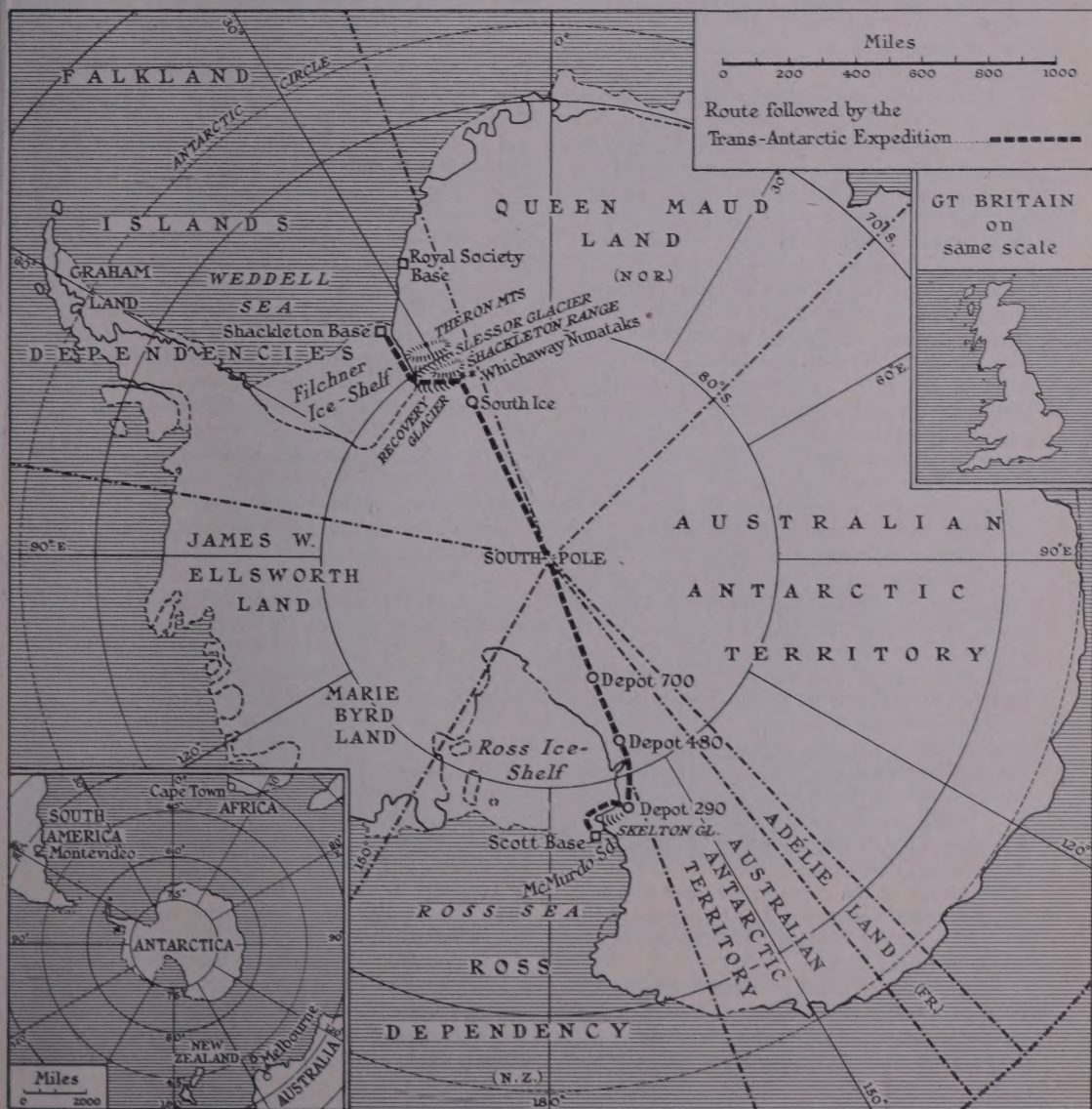


vehicles (three Weasels and one Sno-Cat), led by Dr Fuchs, left Shackleton to pioneer the surface-route to South Ice, where the wintering party had been reinforced by air. Certain incidents of their journey revealed the nature of the obstacles.

Although South Ice is only 275 miles from Shackleton we travelled about 400 miles in the course of our journey. Of this distance sixty-nine miles were over closely crevassed country, the widest single belt being one of eleven miles where cracks and holes, a number of them large enough to take a London bus, occurred every few yards. In spite of the four vehicles being linked with Terylene safety

ropes, some of them would certainly have been lost if careful probing and opening of the crevasse lids had not been carried out. Our probes were generally to a depth of five feet and were spaced from one foot to three feet apart—a slow procedure. In this way we could advance about one to two miles in a long day, but sometimes this was reduced to as little as half a mile.

Occasionally a vehicle or sledge would break through and hang precariously over black and cavernous depths, but always we managed to recover them. Even so, it was a considerable strain on the drivers, who moved



slowly forward over the uncertain surface waiting for something to happen.

Early in the journey one Weasel had to turn back. After fifty miles the crevasses became more numerous and deeper. With air support from Shackleton routes were found through both this increasingly dangerous area and a second and even more widespread area of crevasses.

To the south of us, and extending from the Shackleton Range as far as we could see to the west, lay the tremendously crevassed and contorted ice-slope which rises 1000 feet from the inland margin of the ice-shelf and marks the termination of the great glaciers that descend from the higher inland ice. This we referred to as the "ice-wall" and we knew that it presented our next and perhaps our greatest obstacle.

Meanwhile Stratton, Blaiklock, Stephenson and Lowe, with two dog-teams, had been flown up from the base to establish a camp at the western end of the Shackleton Range from which they reconnoitred and flagged a route from the ice-shelf up the ice-wall, before carrying out surveys and geological work in the neighbouring newly discovered mountains. At the end of October the dogs were flown to South Ice. Following this flagged route, the party moved up towards the south-west corner of the mountains. Despite crevasses, and several areas of soft snow from which the Weasels had to be rescued by the Sno-Cat, the route proved entirely satisfactory, though the heavy uphill gradient proved too much for Dr Fuchs's already labouring Weasel; he coaxed it to the top but its end was clearly near. Before all the vehicles had reached the top of the ice-wall the party was joined by Stratton and Blaiklock and a dog-team from the advance air camp nineteen miles away.

The vehicles now headed for the western end of the Shackleton Range, but over rather uncertain country, for we had to travel along the length of the great crevasses which run back from the top of the ice-wall. We had, however, little trouble. Our narrowest escape was when heavy vibration of the surface and a column of snow shooting into the air heralded the appearance of a huge hole ten feet to the left of the Weasel which was being towed out of soft snow by the Sno-Cat. This hole, about 30 feet wide and over 50 feet deep, had formed in the 12-foot-thick bridge of the crevasse we were crossing. It was indeed fortunate that this occurred to one side and not beneath the vehicles, as one could have expected.

Shortly before this, my Weasel engine had finally failed and we were now reduced to two vehicles while still 100 miles from South Ice. That day, October 31, we covered

seventeen miles and camped just south of the south-western corner of the Shackleton Range. There at 3300 feet we were on the edge of a great forty-mile-wide glacier [the Recovery Glacier] running from east to west and across which we had to pass on our way to the Whichaway Nunataks.

This was the name given to a number of rocky outcrops which had been discovered by air and reconnoitred by a man-hauling party during the previous season. More and worse crevasses lay ahead, but they were traversed by similar means.

Only 100 yards now separated us from the apparently smooth glacier sloping up between the nunataks. Yet a brief investigation showed these seemingly innocent lower slopes to be cut by large, well-covered crevasses. These we decided we could safely cross and so it proved, but before we began the ascent the Recovery Glacier made a final gesture. The Sno-Cat for the first time dropped a track pontoon into a hole. We had always used the Weasels as crevasse-detectors, since we knew that the Sno-Cat would probably recover them, but we believed that if the Sno-Cat were to get caught, a Weasel would be unable to assist. In this case our concern was short-lived, for with some digging and two men standing somewhat perilously on the pontoon to swing it into position, the Sno-Cat was able to climb out under its own power.

At last, feeling that our difficulties were over, we set off up the small glacier ahead; slowly we crept two-and-a-half miles to the top of the col and once more headed south directly into the midnight sun. When we camped that night we were sure that the way lay clear to South Ice, now only twenty-five miles away.

Throughout our journey the hard snow-ridges or sastrugi had always lain across our route; here at 4000 feet the same situation prevailed, but the wind-swept surface, shining through its low veil of all-pervading drift, retained in places fields of giant sastrugi, many of them between two and three feet high. Our progress was therefore slow and evening came before we approached South Ice. Presently a tiny black speck began to appear and disappear with the rise and fall of the undulating surface. Then quite suddenly we topped a rise to find Hal Lister quite close, for he had skied over three miles from South Ice to meet us.

Continuing, we soon saw the aerials and lattice towers of the wind-generator and meteorological equipment that now alone mark the site of the station above the surface. As we drew close the dogs stirred and the



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A Sno-Cat suspended over a deep crevasse. One of the main obstacles the expedition had to contend with, crevasses were fortunately confined to the approaches to and descent from the high polar plateau which was itself free from them. Some were large enough to engulf a London bus and continual careful probing was essential to avoid disaster; even so the vehicles again and again fell through the snow-bridges over them and progress was sometimes reduced to half a mile a day. It was like "driving a tank across a minefield except that one was waiting for something to go down instead of up"

solitary figure of Johannes La Grange, who had been operating the radio, came out to greet us. Soon we were all inside the four-man hut to talk far into the night and then to sleep.

On November 15 the party flew back to Shackleton, leaving at South Ice the vehicles and sledges with which they had arrived there. The remainder of the expedition's vehicles (two Weasels, three Sno-Cats and one Muskeg) were then brought up to South Ice, only the Otter aircraft and its crew of four remaining at Shackleton, while the Auster was flown to the Royal Society Expedition's base at Halley Bay, 200 miles north of Shackleton.

Meanwhile on October 14, leaving Scott Base on McMurdo Sound which he had established ten months previously, Sir Edmund Hillary and the New Zealand party with a Weasel and three rather battered farm-tractors set out across the Ross Ice-Shelf, climbing by way of the Skelton Glacier to the polar plateau. Going was very difficult and it took forty-one days to cover the 600 miles to Depot 480 where fuel and food were left for the crossing party by the Beaver aircraft operating from Scott. Depot

700 was stocked by air and completed on December 20. The Weasel had been abandoned but Hillary and four others decided to make a dash for the Pole, only 500 miles away. For ten days conditions were better. Then deep snow slowed them down again and abandoning all supplies but the barest minimum they made a non-stop run for the last seventy miles. At midday on January 4 they reached the American South Pole station.

Having himself successfully reached the Pole from South Ice, Dr Fuchs gave the following account of his journey.

SOUTH POLE. January 21

Leaving South Ice on Christmas Day, we have travelled 575 miles to reach the South Pole on January 19. We are therefore 932 miles from Shackleton. From South Ice our two dog-teams moved up to seventy-five miles ahead of our vehicles column. Their task was to give radio-warning of any crevassed areas to be avoided by the main column. As they progressed they built a snow-cairn every five miles which ensured that we followed their route even though the

Sastrugi, or hard snow-ridges across the route, many of them two or three feet high, were another obstacle in the way of the expedition. They recurred on the high plateau to within fifty miles of the Pole and, combined with whiteout, from time to time brought Dr Fuchs's party to a standstill

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David Pratt and Hal Lister making Ramsonde recordings of snow hardness and density. While they travelled, members of the Trans-Antarctic Expedition undertook scientific investigations of many kinds which will undoubtedly form "a worthwhile contribution to man's knowledge of Antarctica"

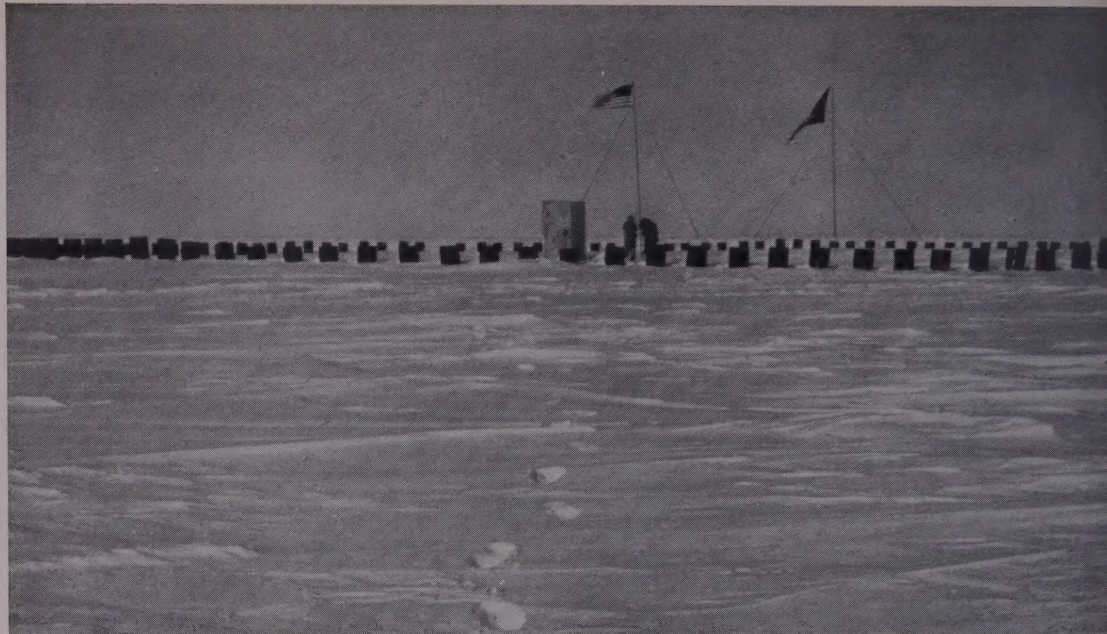
sledge-track had become invisible. After some days the teams joined the main column and since then they have travelled with the vehicles, maintaining the remarkable mileage of thirty miles on many days.

We believed that the most difficult part of the journey was the 350 miles between Shackleton and South Ice. So far this remains true, for since we left South Ice crevasses have been absent and we have had only to contend with belts of sastrugi at right-angles to our route, and with periods of whiteout when even the surface before one is invisible and steering is by magnetic compass alone. The combination of sastrugi and whiteout prevents all movement, and these occasions we use for vehicle maintenance and repair.

From South Ice our route led over a series of east-west ridges, which have remained a constant feature, though their regular nature gave way to a form of snow downland where basins and swells could be seen undulating into the distance. In spite of the rise and fall

we steadily gained height until we reached the true polar plateau at approximately 9000 feet. We were surprised to find that the last of the undulations and rough fields of sastrugi disappeared only fifty miles from the Pole. Over this last stretch the surface was smooth but soft, making hard work for our transport, but this is certainly more acceptable than the rough going of the previous 500 miles. Though by our time we arrived at the Pole on the evening of January 19 we found the Americans enjoying the morning of January 20, and from now we shall be keeping New Zealand time.

Two days before our arrival Admiral Dufek, Commander of the United States Antarctic activities, and Sir Edmund Hillary flew from McMurdo Sound to the Pole station. Together with the Administrative and Scientific Commanders, they met us at a point some three miles from the Pole. We have received a great welcome here and enjoyed the luxury of a shower, for washing since we left Shackleton on November 24 has



The Times

(Above) *The South Pole itself: the United Nations and United States flags surrounded by oil-drums, close to the American camp established by air in connection with the International Geophysical Year.*

(Below) *Sir Edmund Hillary and Dr Vivian Fuchs after their meeting at the South Pole on January 19*

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scarcely been possible.

Henceforward Dr Fuchs was able to make use of Sir Edmund Hillary's information and depots; and now that the dog-teams were to be flown to Scott Base, he hoped to proceed more quickly with the remaining vehicles—one Weasel and four Sno-Cats—and lighter loads, despite increasingly severe weather.

Later despatches continued the story.

When we left the South Pole on January 24 there remained 1250 miles between us and Scott Base. From Shackleton to the Pole we had averaged only seventeen miles a day. Now it was necessary to speed our movement if we were to leave the high polar plateau before March as we planned. It was therefore decided to increase the average mileage to thirty miles a day.

At first the going was not difficult, and we made twenty-five miles that day after a late start. During the next days we travelled over very soft snow surfaces and gradually climbed to more than 10,000 feet. At this altitude the engines were delivering little more than half their normal power at sea-level, and in spite of carburettor-jet changes to suit the altitude our fuel consumption increased until each vehicle was travelling less than one mile a gallon. At the same time we found that the remaining Weasel was unable to keep pace with the Sno-Cats. It was therefore decided to abandon the Weasel and its sledge, together with some redundant equipment, 200 miles north of the Pole.

From that point on the surface became undulating, harder and rougher, but the Sno-Cats travelled faster and more economically. Here and there were the remains of huge sastrugi-fields, but fortunately we nowhere encountered great areas of giant sastrugi like those which delayed us day after day on the other side of the Pole.

Between February 5 and 7 the crossing of a belt of crevasses, reported by Sir Edmund Hillary, caused not only delay but also damage to two of the Sno-Cats. The other two pressed on to Depot 700.

In fact we were 520 miles out from the South Pole and 415 miles by air from Scott Base. Unfortunately bad weather at Scott prevented Hillary from flying out to join us immediately. We therefore settled down to load our needs from the depot, to await the two Sno-Cats which had suffered further steering trouble and to carry out vehicle maintenance. By 10.30 p.m. on February 9 both Sno-Cats had arrived, and three-quarters of an hour later John Claydon flew in with the Beaver aircraft, bringing Hillary from Scott Base.

The following morning, after seeing the Beaver safely away, we set off on a course calculated to avoid the next crevasse belt, but in this we were unsuccessful and had to move carefully over a two-and-a-half-mile zone, though this in fact gave us little trouble.

105 miles were covered in the next two days, but breakdowns mainly to the steering on all four Sno-Cats caused delays while the parts were welded—a slow process in a temperature of -38° F.

At 10.45 p.m. on the 17th we reached Depot 480, after travelling sixty-three miles in that day. For most of this distance semi-whiteout prevailed and the magnetic compass was becoming increasingly unreliable, making it difficult to maintain a course. Luckily a clearance at the end of that day allowed us to see the depot at a distance of four miles, with its white snow-cairns gleaming in the sun for two-and-a-half miles on either side of it. The following day complete whiteout obscured the scene, and the magnetic compass would no longer respond sufficiently for driving purposes.

After some experiment we devised a method of progressing in the right direction whereby the driver of the leading Sno-Cat faced backwards (he could see nothing ahead in any case) and drove parallel to a row of flags planted every tenth of a mile or less by two men riding on the sledges behind. These flags were picked up from the last sledge and carried forward every six or seven miles, to be used again. In this laborious manner it was possible to maintain an excellent course in conditions which would otherwise have stopped us. At this first attempt we covered fifteen miles, but on many subsequent days we managed to move thirty to forty miles.

On February 21 the first mountains could be seen peeping over the eastern horizon and we felt that at least we were reaching the far side of the continent, for we had seen no rock since leaving the Whichaway Nunataks 1500 miles behind us. On February 23 we arrived at Depot 290 on the edge of the polar plateau, whence we knew that our route would descend 9000 feet through the Victoria Land Mountains to the Ross Ice-Shelf.

Within half an hour of reaching the depot a roar of engines heralded the arrival of the expedition Otter and Beaver aircraft. As the temperature was -30° F., the engines were kept running while the aircraft were on the ground, but we found time to congregate inside the Otter, where at one time fourteen of us were shouting to make ourselves heard above the noise of the engine and our own vociferous exchanges. When our visitors flew



The Times

Unloading fresh stores required by Dr Fuchs at Depot 700, nearest to the Pole of the supply-points furnished by Sir Edmund Hillary's party. They were flown from Scott Base by R.N.Z.A.F. aircraft. These depots and Sir Edmund's reconnaissance greatly eased the later stages of Dr Fuchs's journey

away, they carried with them Blaiklock and Stephenson, who were required early at Scott Base to procure seal-meat for two dog-teams that are to winter there.

Next morning they began the three-day descent of the Skelton Glacier through magnificent scenery and towering mountains. It was here that Hillary's assistance became invaluable in enabling them to avoid the crevassed areas. They reached the Ross Ice-Shelf early on February 27. They were now only 180 miles from Scott Base.

Travel on the ice-shelf proved an easy task and, with the good weather, an interesting one, for we could see many of the famous landmarks named by the Scott and Shackleton expeditions, Mount Discovery, Mount Morning, Minna Bluff, Brown, Black and White Islands, then finally the twin volcanoes Mount Erebus and Mount Terror. From the 13,000-foot cone of Mount Erebus still streamed the plume of steam, familiar from Dr Wilson's wonderful paintings and Ponting's magnificent photographs.

As we had given our time of arrival at Scott Base as 2 p.m. on March 2, we camped for the night of March 1 twenty-five miles out on the ice-shelf between White Island and Mount Erebus. Next morning, with flags flying, we set off on our last day's journey. While still a

few miles distant we could pick out the buildings of Scott Base against the rocky background of Ross Island. Above them rose the dark cone of Observation Hill surmounted by Scott's Memorial Cross.

Presently we could see a vehicle moving out to meet us, then another and another, for numerous Weasels from the American McMurdo Station had joined with those from Scott Base to welcome us. For the last two miles we followed a prepared route along narrow valleys between huge pressure-ridges in the ice. At 1.50 p.m. we drew up at Scott Base—our journey of 2158 miles across the continent was over.

Looking back at the vicissitudes of the journey, I think that most of us have already forgotten many of the problems that had to be overcome. Crevasses infinitely varied in extent, size and strength of bridging; fields of sastrugi large and small, hard and soft, always, it seemed, lying across our path; different surfaces each presenting problems of fuel-consumption or vehicle-maintenance. Often we thought that there was no new obstacle that Nature could devise, but always we were wrong. Wind, drift and particularly whiteout were constantly with us, slowing us down and making navigation difficult. Low



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(Above) *The Skelton Glacier, leading down from the polar plateau to the Ross Ice-Shelf and flanked by rocky scarps and high peaks, afforded the most magnificent scenery encountered during the whole traverse. Here Dr Fuchs derived invaluable assistance from Sir Edmund Hillary's knowledge of the crevassed areas.*

(Below) *The first crossing of the continent completed: flags flying, the expedition reaches Scott Base*

The Times





The Times

Dr Vivian Fuchs enjoys a hot meal and the comfort of Scott Base at the end of his epic journey of ninety-nine days and 2158 frozen miles across the Antarctic Continent

temperatures inevitably increase the time required for any task, but beyond this they had little effect on man or machine. Perhaps our greatest hardship was lack of sleep, for we seldom got more than six hours a day and very often less.

Apart from the natural obstacles there was always the vehicle-maintenance and repair problem. Sometimes replacements were necessary when vehicles had been recovered from crevasses; more often the sheer wear-and-tear of severe surfaces caused trouble with tracks and steering-gear.

Naturally, these difficulties presented themselves separately over a period of time. It was, therefore, a matter of adjusting ourselves to the variety of conditions and using our potential with discretion as each problem presented itself. At no time did we consider abandoning the journey, nor was there at any time a discussion on this point.

It is too early to assess properly what the final results of the expedition's work may be.

Certainly Geoffrey Pratt's seismic sounding taken in conjunction with his gravity traverse will provide a sub-ice profile across the continent. It is already clear that along our route the rock-surface is everywhere above sea-level. On the Weddell Sea side of the Pole buried mountain ranges rise to some 7000 feet above sea-level, and on the Ross Sea side to nearly 9000 feet. Beneath the Pole itself lies almost 8000 feet of ice filling a fifty-mile-wide depression between high rock-masses, which are themselves buried beneath 2000 feet of ice.

In the glaciological field Lister's daily Ramsonde measurements, examination of ice-cores, and temperature gradient will be of particular interest, as will the more detailed work at South Ice. The meteorological records begun at Shackleton by the advance party of 1956 were continued until the evacuation of the base. The meteorological observations from South Ice in latitude $81^{\circ} 57' S$ and at 4250 feet should also prove of particular interest, since it was one of the few stations in the interior of the continent. In addition La Grange maintained meteorological observations throughout the crossing,

including flux-plate and radiation measurements.

As a result of surveys by Stratton and Blaiklock it will be possible to produce a map of the newly discovered Theron Mountains, Shackleton Range and Whichaway Nunataks. Stephenson's geological studies in these mountains and his fossil material should be of particular interest, since they lie between the known areas of Queen Maud Land and Graham Land.

Other work includes Rogers's study of energy balance, which will be of considerable physiological interest, David Pratt's friction work on varied snow-faces, and a winter indoor climate study by Stratton. Taken together with the extensive and successful field programme accomplished by the survey and geological parties from Scott Base in New Zealand's Ross Dependency, I am confident that the two halves of the expedition have made a worthwhile contribution to man's knowledge of Antarctica.

The Pitoons of Spiti

by PETER F. HOLMES

The author, his wife and a companion were the only European members of their expedition to a remote part of the Himalayan borderland between India and Tibet. They explored 500 square miles of country unvisited by Europeans and collected geological specimens; while the two men climbed ten new peaks. The expedition received a grant from The Geographical Magazine Trust Fund. Mr Holmes's book Mountains and a Monastery is to be published in October by Geoffrey Bles Ltd

THE Rohtang La, 13,000-foot gateway to the North, had opened a few days previously for the first time since the winter snows had come seven months before. Starting from Manali, the last village to the south of the Great Himalayan Divide, we had found ourselves caught up in a surge of people and animals: Ladakhi migrants who had spent the winter in the plains, returning to their homes to help with the summer harvests; Kulu merchants, their ponies laden down with sacks of tea and salt, pushing boldly into the mountains; and shepherds leading their flocks of sheep and goats over the Divide to escape the crippling foot-rot which comes with the monsoon's dampness to attack their animals.

Once over the dreaded pass—more than a hundred travellers have perished in as many years in its sudden storms—the long line of caravans split up. "What is your destination?" I asked the wizened leader of the caravan that followed us. "Ladakh," said he; "and there is another Ladakhi family, neighbours of ours at home, a little further behind. It is a hard journey so early in the year. We have been travelling for five days and we have covered barely a quarter of the distance." They were a score in all. The men and women urged on their eighteen heavily laden ponies; atop each animal, nestling securely between the baggage piled high on either side, was a child or a foal. Our own party numbered eight, with eleven ponies; and while most of the caravans turned westwards, towards the grazing-grounds of lower Lahul or on the long road to Leh, we and the two Ladakhi families turned eastwards.

For six days we shared the same difficulties—steep, still-unmelted snow-slopes to be traversed, turbulent tributary streams to be forded, ugly moraines and slippery glaciers to be negotiated—helping each other when we could, camping together at night on the infrequent patches of green which afforded grazing for our animals. Then our paths separated, for they were heading northwards,

towards the Bara Lacha La and Ladakh, while we alone continued eastwards to Spiti.

A last salaam and godspeed and we turned up for the long climb to the summit of the 15,000-foot Kunzum La. A cold wind and churning grey clouds over the peaks behind us hurried us on our way, for we knew that the top of a pass is no place to be in a storm. A *la-tso* of stones and multi-coloured prayer-flags flapping in the wind greeted us as at long last we approached the final ridge. The prayer-flags, with their Tibetan lettering, were a sign that we were entering Buddhist country. They are placed on the *la-tso* by travellers thankful for a safe ascent; should an impious or negligent traveller omit to do this the local deity might crush him with a boulder or annihilate him with a sudden storm. Lady Kunzum was obviously in a threatening mood today, so we each duly affixed a prayer-flag or added a stone to the *la-tso*. Before us lay Spiti, our destination, and as if in welcome the valley and the mountains, ignoring the brooding greyness behind us, were bathed in sunlight.

Spiti, properly pronounced 'Piti (so it is not rude to call the inhabitants Pitoons) means the "middle country". For centuries it was a weak buffer-state appropriated first by one warrior and then another from the former rival kingdoms of Ladakh, Tibet and the Punjab.

Two thousand five hundred people live in a province of roughly the same number of square miles. Since the greater part of the province is too mountainous for settlement nearly all the villages are in the main valley. The Great Himalayan Divide to the south effectively keeps out the monsoon and the result is a desolate mountain-region with a typically Tibetan climate: in the cold dry winters a prodigious snowfall and in the hot dry summers almost no rain at all. The height of the province—the lowest village is more than two miles above sea-level—emphasizes the dryness. Indeed only one-thousandth part of the land, less than an acre in a square mile,

is cultivated.

One would have thought that the vast accumulations of winter snow and glacier high above, which send down very considerable amounts of water all summer long, would serve to irrigate the Spiti Valley. But the beds of the streams and the main river which carry this water on its long journey to the Arabian Sea have eroded the soil so deeply that they are in places two hundred feet below the level of the valley plateau on which the villages are built. The villages cannot be moved down to the water's level because it changes so frequently. In December, when a bitter frost almost stops the flow of waters altogether, the Spiti River is barely three feet deep and at its widest only a stone's throw across; but when we saw it in July it was a powerful swirling torrent of immense strength, often a mile wide. With such variations it would be courting disaster to build near the banks. Thus only tiny rivulets and occasional springs can be utilized to irrigate the land, and around each of these sources of water a village clusters.

Walking down the Spiti Valley we were surrounded by the browns and greys of

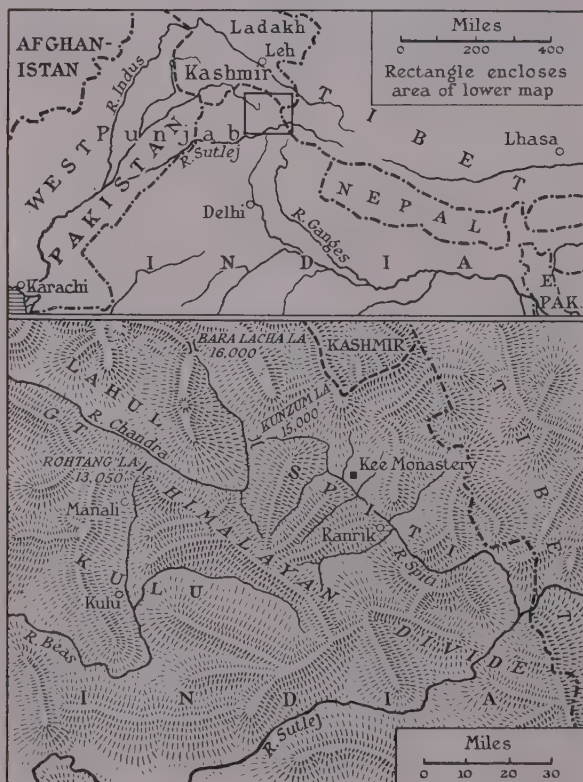
dreary waste plateau and scree, dry and rocky and hopelessly barren. Only a smudge of green ahead of us which heralded a village told us that there was life hereabouts. As we drew closer the fields took shape; they were neatly tiered, as paddy-fields are, to make the maximum use of the water-supply. Beyond the fields was the village: thirty or thirty-five houses, built hither and thither without plan. This place was Ranrik, the biggest village in Spiti, with a population of nearly one hundred and fifty souls. There was not even an obvious path between the houses, for as often as not a prayer-monument or a stone wall blocked the way.

Once in the village centre we were quickly surrounded by a noisy crowd of children whose curiosity knew no bounds. They fingered our strange clothing and exclaimed with astonishment at our outlandish possessions. They were a ragamuffin lot. There were long-haired and shaven-headed little boys, all mischievous and sturdy and tough. They were dressed in maroon robes as all Spiti males are, and many carried baskets on their backs in which they had collected brushwood and dung. The girls had long

hair and tiny turquoise beads in the middle of their foreheads to show they were unmarried. Many of them, no more than six or seven themselves, carried their baby brothers or sisters on their backs.

One forward youngster with a shaven head who seemed to be their leader took us to a house which was typical of those around it. Built of mud and stone, it was two storeys high. We entered by a low door and ascended some worn stone stairs. The ground floor, our boy-host explained, was reserved for the animals' stabling. In summer they spent the nights there and went out each day to graze on the hillsides; in winter they lived there for six or seven months on end. "We live upstairs," he added.

We were met at the top by a small elderly woman, the boy's widowed mother. Her skin was wrinkled and withered, though she cannot have been more than forty or forty-five years old. She was dressed in the maroon trousers and tunic that are the uniform of the Spiti woman and she wore her hair in a fashion which has probably not altered in a





The author

Spiti, roughly 250 miles north of Delhi on the Tibetan side of the Great Himalayan Divide, is perhaps the most inaccessible province in all India. Of the two approaches to it from the plains the shorter but more difficult, covering sixty miles of mountain terrain, lies up the Chandra Gorge

thousand years, with myriads of tiny plaits reaching down her back to below her waist. She led us across an open courtyard, on three sides of which were the family rooms, apologizing as she went for the inadequacy of her hospitality. "This is only our family's second house," she said. I asked her what she meant. "We moved to this house", she explained, "when my eldest son married and inherited the first house." "What if your own parents had still been alive and living here?" I asked. "Then of course they would have moved into the third house", she answered. Her tone implied that in the unlikely event of anyone living to become grandparents of an adult the house they would move to would be little better than a hovel. I gathered that old age was not encouraged.

We entered a small smoke-filled room which served as kitchen, living-room and bedroom. Our hostess bade us sit and we made ourselves comfortable on the bare mud floor. For a moment I was blinded by the acrid smoke coming off a small fire which smouldered at one end of the room. The boy poked the fire with his foot and added a few pieces

of dung, the most common fuel in Spiti, for it is rare to find more than a single tree in a village. This is another reason for the stabling of the animals by night—it would be folly to risk losing so much precious dung!—and also for the unhygienic hole in the middle of the courtyard which serves as a lavatory.

As we sipped salted butter-tea out of small silver cups I asked about the children who even then were peering at us through the doorway. Why were so many of the boys shaven-headed, while others had long hair? "The long-haired boys", our hostess replied, "are eldest sons, and when they marry they will inherit their family's lands. The rest are younger sons and they will enter the monastery. All monks have shaven heads." The reason for this rigid custom whereby every younger son is forced to lead a celibate monastic life is not difficult to find. Because the cultivable lands, and thus the crops, are limited by lack of moisture, the number of mouths there are to feed must also be limited. Otherwise there would not be enough food to go round. To keep the population more or less constant custom decrees that only the eldest son of each family may marry.

Even with a constant and relatively tiny population the simple act of living is no easy matter for the Pitoons. Apart from the scarcity of water, the very height and climate of the valley limits the possible crops to three: barley, peas and mustard-seed. Altitude also restricts the livestock to goats, sheep and yaks. Trade with neighbouring provinces, and especially with those to the south of the Divide, would alleviate the situation, but the Pitoons have nothing but their famous ponies to barter or sell. So imports are restricted to brick-tea and salt, and lately cigarettes. Apart from these the valley is self-sufficient, albeit at a subsistence level.

While we were talking the children at the door suddenly rushed over to the edge of the courtyard. Below a fight was about to begin. Two men were standing face to face shouting the most terrible names at each other, and around them a dozen or so others were clearly taking sides. The cause of the argument was impossible to guess, but there was no doubting the ferocious intent of the two men. I wondered for the safety of our ponies, tethered not far away. I need not have worried. Robes flew about, there was a great deal of noise and a few ineffectual blows, and then someone's string of prayer-beads broke. In an instant the fight was over, honour was satisfied and everyone was on his knees hunting for the missing beads. I began to understand why no recruiting-sergeant had ever visited Spiti. The Pitoons would make wretched soldiers, for they are much too tolerant. In some ways they are backward beyond belief—give them a wheelbarrow, for instance, and they would cheerfully sling it on their backs—but in this they are more advanced than the West can ever hope to be. How refreshing it is to hear of a great battle once fought between the Pitoons and the neighbouring Lahulis near the Kunzum La. Directly the first combatant was killed a halt was called and a peace was negotiated forthwith.

We camped near Ranrik for more than two weeks and during this time we came to learn much about the villagers and their way of life. It was quickly apparent that virtually all the work was done by the women, with the children to help them. At dawn the children would drive the flocks past our tents up onto the mountainside searching for grass, while the women went into the fields. Apart from tending the crops the women spin and weave for their family's clothes, they collect the fuel (I earned the gratitude of our hostess by granting her the monopoly to our ponies' dung), they cook the food and when

necessary they repair the houses. They make up for their hard life, at least in part, by wearing a beautiful and varied array of jewellery. None of the stones are precious, but they are all colourful. The blues of their turquoise, quite a common stone, blend harmoniously with the deep reds of their home-spun clothes. In addition they are as happy and as given to giggling as women anywhere in the world; their infectious cheerfulness stands them in good stead in their hard life.

The landowners, of whom there were a score in Ranrik, spend their days following the lofty pursuits of politics and *chang*-drinking. (*Chang* is a kind of beer made from barley.) The political complexities of a village council of twenty are endless; the schisms and alliances, the lobbying and influencing would do credit to a European parliament. Only during two weeks of the year, at harvest time, do the landowners set aside their higher life and condescend to work.

The children assume an adult's responsibilities at a much earlier age than we are accustomed to. Until they are nine or ten they help their mothers, looking after the babies or tending the flocks or searching for fuel. Thereafter the girls work full-time beside their mothers. Later some will marry, but because of the acute shortage of eligible bachelors many will remain spinsters. Spinster or wife, they will continue to work just as hard. For the boys life is quite different. Until they are ten they will work with their sisters. Then they will either go to the local monastery as novices, there to remain for the rest of their lives, or else, as heirs-apparent, they will lounge about like the older landowners.

The Ranrik younger sons go to Kee Monastery, six miles away. It is in a magnificent position. Perched atop a rocky spire, it assumes the aspect of a castle standing guard, and from its topmost roof there is a superb view up and down the greater part of the valley. This explains its chequered history. For each time an invader marched through Spiti he deemed it necessary to destroy or at least neutralize Kee.

Not a great deal is known about Kee's past. But it is certain that a monastery was standing in the early 11th century, though it probably stood on another hill nearer to Ranrik. The present buildings date from the early 18th century, though they suffered grievously from fire during the Dogra invasion of 1834; fortunately most of the movables were saved by the timely flight of the monks. This was a common Spiti



All photographs by Peter F. Ho

The Spiti Valley, 12,000 feet or more above sea-level, is a mountain desert hemmed in by 2000-foot ranges. Its people live a harsh life, barely surviving on the food won from the minute amount of land that is available for cultivation. In summer, when the valley is bathed in sunlight and abounds in wild flowers, it is hard to believe that for seven months the prodigious falls of snow confine the people to their houses

The inhabitants of Spiti, pronounced 'Piti, may properly be called Pitoons. Their age is difficult to determine, since the extreme climate and hot sun bring premature wrinkles. This man might be anything from forty to seventy. His hat, handed down from father to son, is a family heirloom. Accumulations of dirt cling to its fur-lining. The coarse material of his tunic is spun and woven by his womenfolk. Garments such as his are worn and patched until almost nothing of them remains





Once a year the villagers of Ranrik penetrate twenty miles through a gorge to reach rich pastures just below the summer snowline of the Great Himalayan Divide. Here precious dwarf junipers are found, invaluable to the Pitoons as fuel. For once the landowners, identifiable by their long hair, are engaged in work. They travel in small groups with only a communal cooking-pot, a pipe, a bag of tsampa ^{panched barley} and their individual tea-bowls. The rules of Buddhism enjoin that tobacco shall not touch a believer's lips; and so the Pitoons inhale the smoke of their pipes through cupped hands



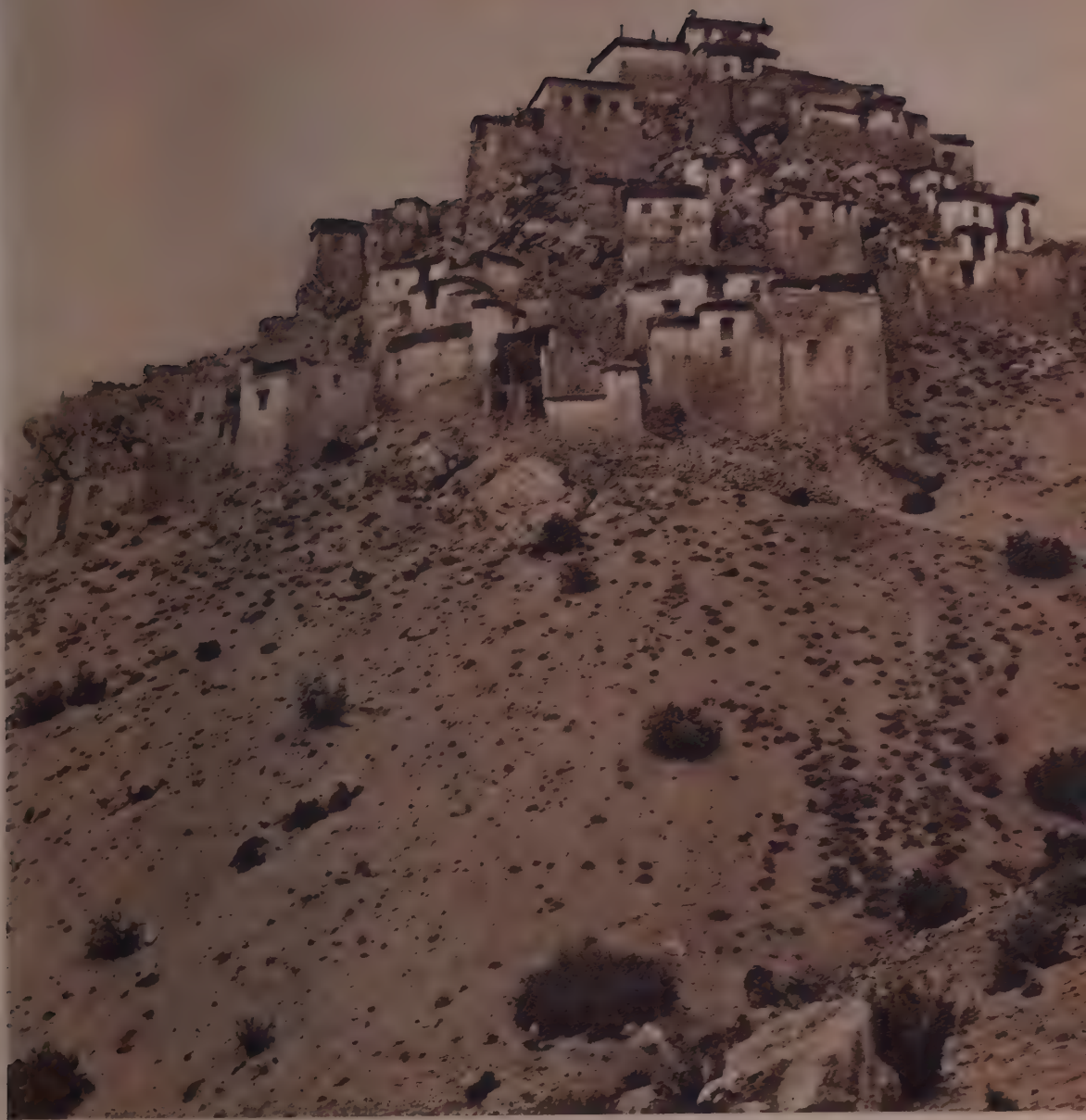
These villages are no more than patches of green on a landscape
 of scrubby brown earth. Prayer flags flutter on the roofs of
 the houses, swinging off the wind currents. Carefully collected
 ornaments such as the one, given to being stored against the
 wind. The lower section of the Lipton River, which of
 course would make the entire valley pattern one long pasture,
 flows by unobscured, so there may be the Pagan and to the sea

An elderly Spiti woman sorts the roots she has pulled up, for her husband, the local doctor, has to rely on herbs for his medicines. Her hair, greased with yak's fat for the sheen, is dressed in the local style: plaited into a myriad braids, it is gathered below the waist with a matting of yak's hair





The cell of the missing Abbot of Kee, four years overdue from a pilgrimage to Lhasa. Prayers are being said daily for his safe return. Here a monk meditates on the text he has just recited from the unbound volume of Scriptures before him. On the private altar are the prayer-boxes, religious paintings and lithographs the Abbot brought back from former journeys



"Kee Monastery, perched atop a rocky spire", is the home of 180 of Spiti's monkhood. Monks' cells, which are kept always in the same family, being passed from uncle to nephew, huddle haphazardly on such ledges as there are. The highest buildings house the five temples of the monastery, and these vary in sanctity from a monks' common-room to the holy of holies



The schoolmaster and his beautiful wife are the forerunners of Delhi's plans to 'develop' Spiti. During the three years he has been attempting to teach the young Pitoons he has met with little except friendly unwillingness to learn. Forced to live the simple life of a backward Pitoon, he finds that often the children just will not believe what he tells them. "But how can water be so wide that one cannot see across it?"

practice, and very wise it was. Whenever an invader who fought wars in earnest appeared the Pitoons would take their animals and movables and retreat to the mountains, leaving only the buildings, which could be re-erected without much effort, to be plundered.

Entering the monastery by the main gate, where a stuffed snow-leopard stood guard, we climbed up narrow uneven steps towards the temples. On every side were low doors, leading to the monks' numerous cells. At last we came to the main courtyard and here we were greeted by the acting Abbot of Kee. Dressed in the usual ragged red robe of Spiti, only his shaven head proclaimed his vocation. Had we met him outside the monastery he would also have been wearing a yellow hat, and this would have singled him out as a monk of the Ge-luk-pa or "Virtuous Order" of Monks; though, as we were to discover during our visit to Kee, the Spiti exponents of this Virtuous Order are no longer so virtuous.

Kee must once have been an exceedingly rich monastery, for the religious trappings and ornaments are magnificent. Beautiful paintings on silk, Buddha-images covered in gold- or silver-leaf, a complete set of the 333 volumes of the Tibetan Scriptures and Canonical Commentaries, all printed in Tibet from laboriously hand-carved wooden blocks, a multitude of smaller images in bronze: all these testify to the splendour of an age gone by. Now the images are covered inches deep in dust, the Scriptures are recited by rote rather than read, and the daily prayers of the monks are more ritual than religion.

Two episodes illustrated the decay of the monastic rule in Kee. We were invited into the central temple for tea. A ten-minute prayer preceded the tea-drinking, and while I watched in horror as the tea cooled and the butter congealed, the monks droned on, individually taking time out to scratch themselves, gaze at us, inspect our cameras or just rest. As one after another of the monks yawned and gave up, I thought the prayer would die out from sheer lack of enthusiasm. But it was taken up with renewed vigour. When the prayer finally ended the silver cups were drained, refilled, and then the monks settled back with a sigh and began again.

Later we watched a rehearsal of the *cha'am* or mystery-play which takes the form of a dance given by the monks after the harvest is safely gathered in. The monks

were dressed in gorgeous robes and masks, representing demons and gods. The gist of the play is that the demons have become too tyrannical over mankind, so the gods descend and give battle. By the end of the dance all the demons are prostrate or have fled. But as one sceptical onlooker said, "The demons may be prostrate at the end of the dance, but so is everyone else—with chang!"

Elsewhere in Tibet and Ladakh there may well be monasteries which live up to the highest precepts of the monastic ideal. Not so in Spiti; though Kee has some small excuse. For the true Abbot of Kee has been absent for more than seven years. Then he went on one of his periodic pilgrimages to Lhasa which are customary for all abbots of monasteries. Nothing has been heard of him since, and as he is four years overdue it is feared that he is being detained by the Chinese, for he was a renowned holy man. Even the monks of Kee realize that Communism is not very sympathetic to religion.

If the monks have become lax and if local gods have assumed an importance alien to the true spirit of Buddhism, nevertheless there is an atmosphere of prayer throughout the valley which pervades life itself. The prayer-flags above the monastery, on the roof of each house, on the passes, the long *mani*-walls on either side of the villages, with carved Buddhist prayers, the hand prayer-wheels which every traveller invariably carries, all these combine to utter forever "*Om mani pad-me hum*". We found ourselves unconsciously absorbing the feeling that this prayer generates. Without thinking we passed prayer-walls on the left, as religious custom prescribes; automatically each of us placed a stone on the frequent holy cairns.

If there is decadence in Spiti, there is also peace and tolerance. The inhabitants possess a hospitable friendliness and a contagious happiness which is rare indeed today. Alas, all this may be changed. For the Government in Delhi has ambitious plans to 'develop' Spiti. These include systematic up-to-date irrigation, the eventual building of a jeep-track to the plains, proper schools and medical care. They will undoubtedly benefit the Pitoon materially, for though he never starves he seldom has much to spare, and he is plagued by weakening hereditary diseases. There is, however, a Tibetan saying which warns of the strife and unhappiness which comes with the foreigner; and if Delhi's plans are put into effect, Spiti can hardly remain what it now is: a mirror into a more tolerant past.

Fort Ticonderoga: Key to a Continent

by JOHN H. G. PELL

This month the bicentennial of a great battle is being celebrated at Fort Ticonderoga, a place of crucial importance in American history for reasons which Mr Pell herein explains. His family has owned the fort for five generations, restored it, established in it a notable military museum and maintained it for the benefit of more than a quarter of a million people who visit it each year

LAKE GEORGE has often been described as the Lake Como of America. Lying between high mountains in the eastern part of the Appalachian Range, its waters are blue and so clear that the rocky bottom of the lake is easily discernible hundreds of feet below its surface. Thirty-five miles long, never more than a mile wide, it almost touches the Hudson River to the south and does empty into Lake Champlain to the north. The three bodies of water—two lakes and a river—form an almost continuous waterway running due north and south between Montreal on the St Lawrence River in Canada and New York on the Atlantic seaboard. Today turbo-jet planes flying between the two cities follow this same course, flying over the lakes and the river that formed a highway for Indians in the 16th century, for fur-traders in the 17th century, and for armies in the 18th century. Since the wilderness on either side of the lakes was impenetrable in those days, the only alternative route of communication between French Canada and the English seaboard colonies was by way of the St Lawrence River and the Atlantic Ocean, a thousand miles longer.

On every kind of day, winter and summer, the scenery of Lake George and its mountainous surroundings is spectacular. On one particular sunny day, July 5, 1758, the lake was the scene of a pageant so colourful and dramatic that Indians watching from the shores and islands of the lake must have wondered if it could possibly be real. On that morning the British General Abercrombie embarked an army of 15,000 men in 900 batteaux (light river-boats), 135 whale-boats and a large number of flat-boats. The army was the largest that had ever been assembled on the continent of North America. Leaving the south end of the lake early in the morning the flotilla—six miles long from front to rear—crossed the lake in one day.

In the leading boats there were Rogers'

Rangers followed by Gage's light infantry and Bradstreet's batteau-men, armed and drilled as soldiers. The main body consisted of Lord Howe's regiment, the 55th, the Royal Americans, the 27th, 44th, 46th, and 80th Infantry, the 42nd Highlanders. There were two floating castles, batteries designed to cover the landing of the troops. On either side of the main flotilla there were regiment after regiment of blue-uniformed Provincials, from Massachusetts, Connecticut, New York, New Jersey and Rhode Island. In the rear there were batteaux loaded with stores and baggage and heavy flat-boats carrying artillery. There were banners flying in the breeze, red and blue uniforms and Highland plaids, weapons glittering in the sunlight and flashing oars. There was the music of bugles, trumpets, bagpipes and drums echoing against the mountainous shores of the lake.

"I never beheld so delightful a prospect," an officer who was an eye-witness wrote a few days later. Everyone was confident and cheerful because it was well known that at Ticonderoga, the destination of the expedition, the French Fort Carillon was incomplete and defended by a garrison whose numbers were only a fifth of the British Army's. However, one officer of the 42nd Highlanders, Major Duncan Campbell of Inverawe, was silent and gloomy because of foreboding that death awaited him at Ticonderoga.

The explanation of these forebodings is one of the best-authenticated ghost stories. Duncan Campbell was the laird of Inverawe, an ancient castle in the Western Highlands of Scotland. Having taken an oath to give asylum to a stranger, a self-confessed killer fleeing from his enemies, the laird learnt that he was sheltering the murderer of his own cousin, Donald. Although Donald's ghost thrice asked him not to shield the murderer, he felt bound by his oath, whereupon the ghost bade farewell thus: "Farewell Inverawe! Farewell, till we meet at Ticonderoga!"

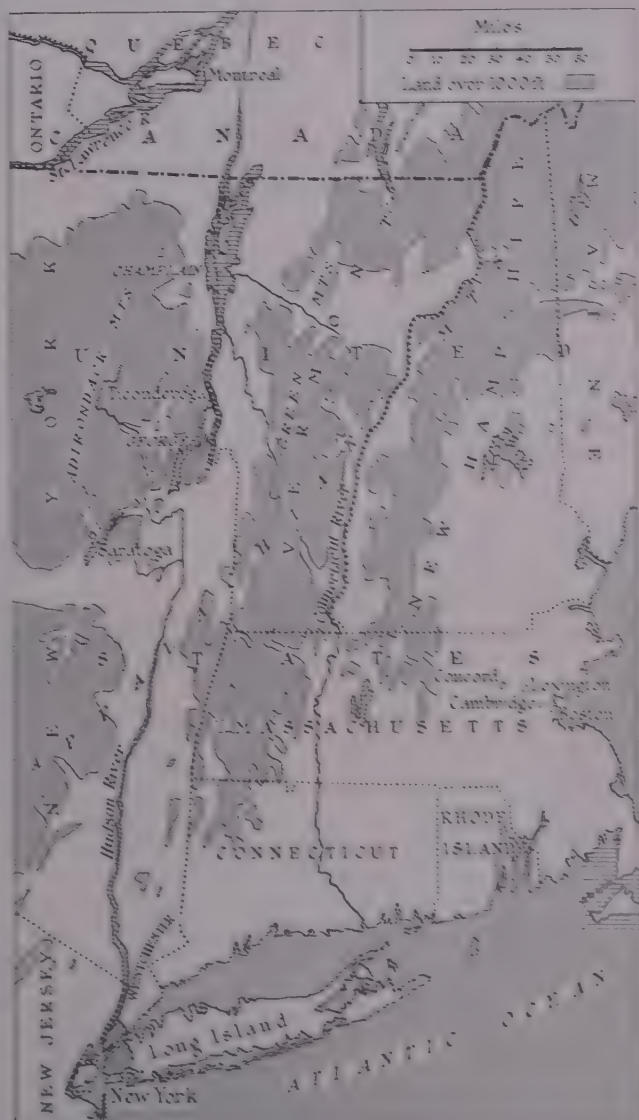
It was not a coincidence that Ticonderoga was of sufficient strategic importance to attract the attention of an army of 15,000 men—and a ghost! When in the early part of the 18th century England and France engaged in a whole series of wars in both Europe and America the water highway formed by the two lakes and the river became the battle-ground for possession of America. In 1731 the French built Fort Saint Frédéric on Lake Champlain. In 1755 the British built Fort William Henry at the southern end of Lake George. Immediately thereafter the French started work on Fort Carillon at Ticonderoga, the outlet of Lake George into Lake Champlain, twelve miles south of Fort Saint Frédéric. Possession of this strategic location, ideally situated for defence or attack, gave the French an immediate advantage: Ticonderoga was the key to a continent.

On September 20, 1755, in Montreal, the Marquis de Vaudreuil, Governor-General of Canada, issued an *aide-mémoire* to Michel Chartier, the Sieur de Lotbinière, "Engineer to the King", containing instructions to proceed to Carillon (the French always called Ticonderoga Carillon), survey the grounds and lay out a fort there.

This Michel Chartier de Lotbinière, the military engineer who was responsible for the construction of Fort Carillon, was a fourth-generation Canadian. According to tradition the Chartier de Lotbinière family originated in Burgundy, receiving letters-patent of nobility in the 14th century. Michel was his parents' eighth child and a few days after his birth his mother died. Overwhelmed by grief and by responsibility his father evaded the latter by entering the priesthood, soon becoming a Canon of the Cathedral of Quebec and Archdeacon of the diocese. His youngest son, Michel, seemed destined for a career in public life, for on the day of his birth he was baptized

at the Cathedral of Quebec with the Intendant of New France as godfather and the Governor-General's daughter as godmother; while after entering the army he married the daughter of the Chief Military Engineer of New France.

Various missions were entrusted to young Michel. When the time came to select an officer to construct Fort Carillon at Ticonderoga, he was a logical choice. Between 1755 and 1757 he had as many as 3000 men working on the fort, which cost 360,000 livres to build.

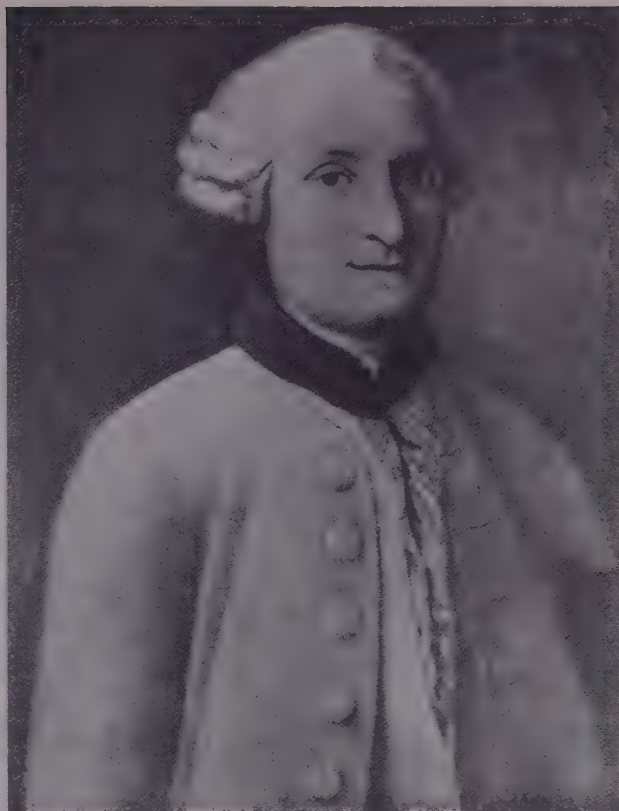


A. J. Thomson



A contemporary plan illustrating the "Battle of Carillon" on July 8, 1758, with the disposition of the forces engaged and the outer works constructed by Montcalm to the west of the fort, against which the British regiments hurled themselves, suffering heavy losses throughout the day.

Michel Chartier de Lotbinière (1723-1798), builder of Fort Carillon, as the French called Ticonderoga. A fourth-generation Canadian, trained in France as a military engineer, he worked under the direct instructions of Vaudreuil, the Governor-General of Canada. The fort was begun in 1755 and almost finished by June 1758 when Montcalm took command. After its successful defence Vaudreuil granted de Lotbinière a vast seignory adjacent to the fort, but with the surrender of Canada to the British in 1763 the territories including it fell south of the new boundary-line. While retaining his Canadian estates de Lotbinière lost this and after thirteen years of futile efforts to recover his title from the British he went to Paris in 1776 hoping that it would be restored if the American Colonies became independent with French aid. Canada, however, was not returned to France nor did the American Congress compensate him. Louis XVI made him a Marquis in 1784 and he died in New York of yellow fever. His son remained a British subject and was the ancestor of a number of distinguished Canadians



The fort which de Lotbinière laid out was an outer star with four bastions within it. In the centre there was a *place d'armes* faced by two barracks and a bombproof shed. There were two demilunes. The fort was built on a solid shelf of rock and the buildings and bastions were constructed of stone taken from a neighbouring quarry.

The British in their newly built Fort William Henry at the southern end of Lake George realized that the French had won an important advantage by fortifying Ticonderoga. Robert Rogers, the ranger, was sent up to reconnoitre several times while the fort was being built. He observed and reported on progress of construction and on one occasion got close enough to kill seventeen head of cattle and set fire to the wood-piles of the garrison.

The fort was almost complete when General Abercrombie approached with his army of 15,000 men. The second-in-command of the expedition was George Augustus, Viscount Howe. While General Abercrombie was old and heavy of mind and body, Lord Howe, only thirty-four, was a natural leader of men, inspiring the army by

example as well as precept. "There are no female followers in the camp to do our laundry," wrote an officer. "Lord Howe has already set an example by going to the creek and washing his own." Under his influence the officers divested themselves of all superfluous baggage, retaining only a blanket, a bear-skin and a small portmanteau.

The great British army landed at the north end of Lake George without event. An advance column, commanded by Lord Howe, started immediately for the fort, but during an encounter with a French scouting-party there was firing and with the first volley Lord Howe was killed. As reported by his aide-de-camp, Major Monypenny: "The loss our Country has sustained in His Lordship is inexpressible and I'm afraid irreparable."

The French defenders of Carillon were commanded by Louis Joseph, Marquis de Montcalm. He had brought a small reinforcement of regulars to Canada the year before and now commanded all regular troops in the colony. Unfortunately these comprised only eight battalions totalling 3800 men. At Carillon there were no more than 3000 men including Canadian militia.

Montcalm was an able regular officer of the French army. He had distinguished himself on several battlefields in Europe. Arriving at Carillon on the last day of June 1758, he quickly learned from English prisoners and French scouts that Abercrombie had 15,000 men at the south end of Lake Saint Sacrement (the French name for Lake George) and enough bateaux and whale-boats to transport his huge army across the lake in one flotilla. Finding that he had only 3000 men to defend an uncompleted fort and provisions scarcely sufficient for nine days, Montcalm surveyed the peninsula on which the fort stood and decided to build a trench across it about a mile inland and west of the fort. The parapet of the trench was formed of the trunks of trees and the earth from the excavation of the moat. Beyond the moat trees were felled and their branches trimmed and sharpened to produce an effect similar to the barbed wire of World War I.

By the morning of July 8 Montcalm's defences were ready. Abercrombie had learned from French prisoners that Montcalm was expecting reinforcements of Marines, Canadians and savages. Fearing their arrival Abercrombie advanced without waiting for his artillery. Shortly after noon the advance-guard, consisting of light infantry and wood-rangers, reached the open ground before the French trenches. From there until nearly 7 o'clock wave after wave of English, Scottish and Colonial troops hurled themselves at the French trenches. When, at the approach of dark, the French still held their trenches, Abercrombie withdrew his great army to the landing at Lake George and the next day returned to Fort William Henry at the other end of the lake.

Although the French had lost in killed and wounded a tenth of their effectives, British casualties exceeded 2000, a sixth of the troops engaged. The Black Watch—42nd Highland—Regiment fought with incredible bravery. An officer of the 55th Regiment reported: "With a mixture of esteem, grief and envy, I am penetrated by the great loss and immortal glory acquired by the Highlanders engaged in the late bloody affair. Impatient for the fray, they rushed forward to the intrenchments which many of them actually mounted, their intrepidity was rather animated than dampened by witnessing their comrades fall on every side. They seemed more anxious to avenge the fate of their deceased friends than to avoid a like death." Among the casualties was Duncan Campbell, who lived long enough to remem-

ber the words of the ghost of Inverawe!

On July 12, four days after the battle, General Montcalm held a review of his forces and a Te Deum was sung on the battle-field. A little later he caused to be erected a huge red cross, thirty feet high.

After the battle the Marquis de Vaudreuil rewarded de Lotbinière for his part in building the fort and helping Montcalm to defend it by granting to him a large tract of land on the west shore of Lake Champlain adjacent to Carillon. The tract, comprising 180 square miles, was named the Seigneurie d'Alainville.

Persistence has been a strong trait of British character at all times and in the mid-18th century they did not allow one defeat to decide a war. In July 1759, just a year after Abercrombie's debacle, General Sir Jeffrey Amherst, a much abler officer, led another army across Lake George. Perhaps Sir Jeffrey would have been a match for Montcalm but by the time he reached Ticonderoga Montcalm had already withdrawn to the defence of Quebec, taking most of the garrison of Ticonderoga with him. After a siege lasting only three days the remaining French garrison departed, leaving a lighted match headed for the powder-magazine. The fort was soon in flames and the magazine blew up with a tremendous explosion.

From 1759 to 1775 no significant military events took place at Ticonderoga, but a small garrison was maintained there and the fort was an important arsenal for light weapons, powder, flints, grape-shot and cannon-balls. During this period a whole series of events incited rebellion in the seaboard Colonies.

In April 1775 British regular troops were fired on by American revolutionaries at Lexington and Concord: the moment for offensive action had arrived. Since the Americans had no army they also had no heavy arms or military stores. Several of them began to think about the arsenal at Ticonderoga.

The fort stood on the western shore of Lake Champlain. Across the lake to the eastward lay a broad and fertile plain, then the Green Mountains, and finally the Connecticut river. This region was known as the New Hampshire Grants, and disputed Colonial jurisdiction over it alarmed many of its settlers. In order to protect their homes and their lands, they organized an armed band called the Green Mountain Boys, led by Ethan Allen, a cross between Jean-Jacques Rousseau and Robin Hood!

The revolutionary leaders in both Connecticut and Massachusetts realized that



Montcalm congratulating his victorious troops after the battle at Ticonderoga in 1758 when 3000 Frenchmen and Canadians repelled the assault of 15,000 British Regulars and American Colonials

there was an armed force in being right across the lake from the coveted prize, Fort Ticonderoga. They sent emissaries (and even some money) to Ethan Allen who gathered together his Green Mountain Boys and led eighty-three of them across the lake before dawn on the morning of May 10, 1775. This was the first offensive act of the American Revolution.

Guided by a scout who had reconnoitred the fort a few days before, Ethan led his men to a wicket-gate in the south wall. A sentry posted there was dozing with an hour-glass beside him. Awakened from his dream he saw in the pale grey light an enormous apparition advancing towards him with a sword waving above its head. This was not the ghost of Inverawe but Ethan Allen, who, followed by his Green Mountain Boys, rushed in to the *place d'armes* in the centre of the fort shouting "No quarter!"

A soldier who emerged from the guard-room in the south barracks was forced to show the way to the room of the Commandant, Captain Delaplace. Asked by what authority he had entered His Majesty's Fort, Ethan replied: "In the name of the Great Jehovah and the Continental Congress." Faced with no alternative Captain Delaplace surrendered his sword, his fort and his garrison.

News of the capture of Fort Ticonderoga spread rapidly throughout the Colonies and gave a lift everywhere to the rebel cause. But the real significance of the event lay in the ordnance and other military stores captured in the fort.

By the early summer of 1775 General Washington had established headquarters in Cambridge, Massachusetts, while General Gage occupied Boston with most of the British regular troops in North America.

Without artillery the Americans had no prospect of forcing the British regulars to abandon Boston. Hearing about the capture of Ticonderoga, General Washington appointed a young bookseller named Henry Knox as chief artillery officer and sent him to Ticonderoga to consult with General Schuyler, now commanding there, and bring back as much arms and ammunition as possible.

Knox reached the fort in the late autumn and found there everything that he and General Washington could have wished for. Since the ground was already covered with snow he built forty-two strong sleds and hired eighty-one yoke of oxen, starting back for Cambridge with six brass cohorns, two brass mortars, six iron mortars, two iron howitzers, and forty-three brass and iron cannon, the total weighing 119,900 pounds. The feat of transporting this huge mass of ordnance through the wilderness in the snow has been compared to Hannibal's crossing of the Alps—and Knox had no elephants! With this artillery Washington was able to raise the siege of Boston and take the first major step forward in winning the American Revolution.

Two years later General Burgoyne with a fine British army recaptured Ticonderoga by mounting a battery on nearby Sugar Loaf

Hill and although Burgoyne later capitulated to Gates at Saratoga, Ticonderoga remained in British hands and the British flag was flying there at the end of the Revolution. Ticonderoga and Crown Point (the French Fort Saint Frédéric) are probably the only military installations in North America where the French, British and American flags have all flown.

General Barry St Leger was the last British commander of the fort. In November 1781 he withdrew to Canada with his men and the fort was never again occupied by an armed garrison. Two years later General Washington visited it on a tour of inspection of the northern department.

After the Revolution all Crown lands reverted to the States in which they were situated. The garrison grounds at Fort Ticonderoga were designated by the State of New York for educational purposes and deeded by the State to Columbia and Union Colleges jointly in 1804.

William Ferris Pell (my great-great-grandfather) made many trips during these years between Canada and New York and, of course, followed the water highway travelled by Indians hundreds of years earlier and paralleled by turbo-jet planes today. His family had all been Loyalists and their land-





Wooley, Ballston Spa, N.

(Opposite) An air-view of Fort Ticonderoga in its present condition, fully restored by the efforts of the Pell family, to whom it belongs. (Above) An older view of the easternmost bastion of the fort, then only partly restored, with the outlet of the river descending from Lake George beyond. (Below) The southern end of Lake Champlain seen across the same bastion, looking northwards, in the opposite direction



Wooley, Ballston Spa, N.

holdings in Westchester County, known as the Manor of Pelham, had been confiscated. Spending most of the war years in Canada, he became an importer of marble and mahogany, both in great demand in the Empire and Regency periods.

Romantic ruins were in great demand, too, and William Ferris Pell fell in love with Ticonderoga and its beautiful surroundings of lakes and mountains. He first leased and later bought the property from the two colleges and in 1826 he built a summer house near the fort, calling it "The Pavilion", after the Prince Regent's newly built house at Brighton. The Pavilion was situated between the lake and the Jardin du Roi, a lovely garden laid out by French officers while the fort was being built.

The countryside was fast being settled and the settlers were removing the fort piecemeal, first taking doors, windows, locks and hinges, and finally beams and stones. William Ferris Pell put a stop to these depredations by fencing in the fort as well as various earthworks and redoubts. He also improved the garden and brought shade-trees and flowering bushes from the nurseries of Long Island. Ever since his time various members of the Pell family have preserved and cherished the fort and its surrounding grounds, regarding the property as a trust owned for the benefit of the public.

In 1908 Mr and Mrs Stephen Pell (my father and mother) began to restore the fort. The architect of the restoration was Sir Alfred Bossom, who has for many years been

The capture of Fort Ticonderoga in May 1775 by Ethan Allen and his Green Mountain Boys was the first offensive act of the American Revolution and provided the revolutionaries with much-needed cannon and other military stores. Here Ethan Allen is adjuring the surprised Commandant, Captain Delaplace, to surrender the fort "In the name of the Great Jehovah and the Continental Congress"





On the occasion of a modern pageant at Ticonderoga, performers represent the participants in the capture of the fort by Ethan Allen. The Green Mountain Boys are prominent in their coonskin caps

a Conservative Member of Parliament in England. By 1909 the west barracks was completed. Bit by bit the outer walls, the demilunes, the bastions and finally the south barracks were restored.

Many relics of the battles of the Colonial wars and the American Revolution have been found in the fort during its reconstruction and in the surrounding garrison grounds wherever digging has taken place. Today the fort contains the outstanding military museum in the United States: its collections of cannon, muskets, swords, pole-arms, powder-horns, gorgets and Colonial uniforms are unequalled. More objects handled by soldiers of the American Revolution are exhibited here than everywhere else combined.

At the present time the fort is visited by more than a quarter of a million people every summer. Many schools in Vermont as well as

New York State send their pupils in bus-loads every year to see it. Educational programmes, including a fellowship for graduate students in history, have been developed and methods of interpretation are constantly being improved, to meet the challenging opportunity in the field of visual education.

On July 12, 1958, the bicentennial of the great battle of Carillon will be celebrated with ceremonies and pageantry. Next year General Amherst's successful campaign will be honoured. On both of these occasions we are more concerned with paying homage to the brave men who fought with courage and gallantry than to victories and defeats. That is why we have chosen as a motto for this year's celebration the words which are written at the entrance to the *place d'armes*: "You who tread in their footsteps remember their glory."

Darwin's Voyage to the Shores of Evolution

by NORA BARLOW

On July 1, 1858, a joint communication by Charles Darwin and Alfred Russel Wallace, consisting of extracts from their respective papers on evolution by natural selection, was read before the Linnean Society. Our thought has been permeated by evolutionary ideas ever since. The voyage of H.M.S. Beagle was "the spark that fired this powder-magazine". Lady Barlow, Darwin's granddaughter, editor of his Autobiography and of two books on the voyage, shows how and why it did so

In the autumn of 1831 a youth of twenty-two wrote home to his sister in high spirits at the possible prospect of joining a surveying voyage round the world as unpaid Naturalist.

Sep. 1831.

My dear Susan,

Again I am going to trouble you. I suspect, if I keep on at this rate, you will sincerely wish me at Terra del Fuego, or any other Terra, but England. First I will give my commissions. Tell Nancy to make me some twelve instead of eight shirts. Tell Edward to send me up in my carpet-bag (he can slip the key in the bag tied to some string), my slippers, a pair of lightish walking-shoes, my Spanish books, my microscope (about 6 inches long and 3 or 4 deep), which must have cotton stuffed inside; my geological compass . . .

I write all this as if it was settled, but it is not more than it was, excepting from Captain FitzRoy wishing me so much to go, and, from his kindness, I feel a predestination I shall start. . . . He recommends me strongly to get a case of pistols like his, which cost £60!! . . . Hang me if I give £60 for pistols . . .

Love to all,

Chas. Darwin

These commissions had to be sent down to London by coach from his father's house in Shrewsbury, but he had his own shopping-list as well: night-caps, pill-boxes, Bramah pens, a cape of the India-rubber cloth with a pouch at one corner for carrying water; and all the necessary books. "I work all day at my lists, putting in and striking out articles." There was last-minute reading to be done, too. "I work at Astronomy," he wrote, "as I suppose it would astonish a sailor if one did not know how to find Latitude and Longitude."

The whole course of Charles Darwin's life had been transformed in a flash by the wonderful offer of sailing under Captain Robert FitzRoy in H.M.S. *Beagle*. Visions of his life-long passion for Natural History

floated before him, painting the scientist's and explorer's bustle and preoccupation in golden colours. The boy who had collected pebbles from his father's front drive would now send cargoes of collections home from every continent. A new purpose in Charles Darwin's life began to unfold, only offset by the pain "of leaving for so long a time, so many people whom I love." The turn in the tide of his affairs brought to an end the desultory existence he had led since leaving Cambridge, and the prospect of a country parsonage finally faded away.

After two months' delay, H.M.S. *Beagle* set sail on December 27, 1831, on the voyage whose fame was to echo far beyond the red Georgian house overlooking the Severn, built by Dr Robert Darwin in the early years of the century. There Charles had spent his boyhood and there the widowed Dr Robert still lived with his three daughters; the image of his beloved home was never far from Charles Darwin's conscious thoughts during the next five years.

As the year 1832 opened the inmates were eagerly awaiting the first letter home. Charles wrote after six weeks at sea of his first experiences of tropical vegetation on the unknown shores of the Cape Verde Islands:

I am thoroughly convinced that such a good opportunity of seeing the world might not occur again for a century. I think—if I can so soon judge—I shall be able to do some original work in Natural History. I find there is so little known about many of the Tropical animals. I find my collections are increasing wonderfully, & from Rio I think I shall be obliged to send a cargo home. All the endless delays which we experienced at Plymouth have been most fortunate, as I verily believe no person ever went out better provided for collecting & observing in the different branches of Natural History.

The faint note of self-justification that sounds in this letter arose from Charles's

wish to reassure his father. For the cautious Dr Robert had at first been antagonistic to the proposed voyage and had sometimes been severe over Charles's inability to settle to a career or to climb the conventional educational ladder. His development in those early years—at Shrewsbury School, at Edinburgh and at Cambridge—had been along lines that did not fit into the classical curricula of those days. He himself wrote in his Autobiography: "During the three years which I spent at Cambridge, my time was wasted, as far as academical studies were concerned, as completely as at Edinburgh and at school."

Nevertheless he had an innate and boundless curiosity about the nature of things—he was always seeking for the "causes and meaning of everything which occurs". He found rare opportunities for increasing his own skills; he had made friends with a Negro in Edinburgh who had travelled with Charles Waterton in South America and from him learnt the art of stuffing birds; he went dredging with Newhaven fishermen who trawled for oysters, so that he might collect marine specimens. When hardly more than a boy he had mistrusted his lecturers who gave unsatisfying explanations of geological problems; and he had wondered at the old Salopian who had said that the world would come to an end before anyone could explain the position of the famous erratic boulder, the Bell-stone, in Shrewsbury. Such unsolved problems were the constant fodder for his thoughts; he took little for granted. His passion for observing natural phenomena in closest detail was always balanced in his mind by an integrating urge to interpret the whole. And these two impulses, so antagonistic in some minds, in his were complementary and both had that emotive force akin to the emotive force of the poet. Late in life he wrote of a memory by the sea in Wales, dating back to the age of ten-and-a-half years, showing how early he was aware of these intense pleasures. "The memory now flashes across me of the pleasure I had in the evening of a blowy day walking along the



From the author

Charles Darwin, aged thirty-one. From a drawing found in the Cambridge Botany School in 1929, probably a sketch for a water-colour drawing made by George Richmond in 1840

beach by myself and seeing the gulls and cormorants wending their way home in a wild and irregular course." He was held suspended between wonder and delight throughout his travels, whether in the depths of a tropical forest or crossing the heights of a wild Andean pass.

It is hard to say how conscious Charles Darwin was of his scientific aims when he left England, and what lay in his mind beyond the doubts of the validity of the arguments used by some of his preceptors. Was the whole question of the mutability of species already brewing? If so, the slow ferment had hardly started to work, beyond, perhaps, guiding the direction of his observation. At Cambridge, Darwin had been under the influence of John Henslow, Professor of Botany, whose friendship Darwin never

ceased to value. But from Henslow no help would have been forthcoming towards an evolutionary solution of the questions that Darwin was asking; he remained a naturalist of the old school, whose breadth of knowledge did not prevent his adherence to the belief in the immutability of species and in their separate creation. Nor did Adam Sedgwick, Darwin's professor in Geology, give him encouragement towards a new biological insight. It can be safely concluded that Darwin left England in 1831 with no preconceived theories about the animate and inanimate panorama soon to spread out before him, but he had already a passion for reasonable classification, and to him reasonable classification soon meant relationship in time and space. Today the step does not seem a big one to an evolutionary classification from descent, but our minds are slow at the acrobatics needed to return to the pre-evolutionary beliefs in the fixity of species. Darwin waited till long after his return home, when he had digested the knowledge gained by his collected

specimens, before enunciating to the world his theory of Natural Selection.

The case was quite different where his geological observations were concerned. He was no trained geologist, but Henslow had given him the first volume of Lyell's *Principles of Geology* to take with him on the voyage; and the second volume in which were recorded Lyell's biological evolutionary views, with a critical summary of Lamarck's theory, reached him whilst still on South American shores. But though Lyell acted as an incomparable guide to Darwin in his first attempts to understand the geology of unknown lands, he gave no lead in transferring those ideas of a slow uniformity of process to biological species. Lyell extended the age of the earth by millions of years and made a convincing history of the earth's crust. He unlocked the door and set it ajar, by demonstrating the slow action of change from natural causes; but until Darwin could find a *modus operandi* for an evolution of the living organism, he laboriously continued to collect the evidence.

All remaining monochrome reproductions from *The Zoology of the Beagle*



Rhea Darwinii, after John Gould.

As the Beagle put in at various places in Patagonia Darwin "repeatedly heard the gauchos talking of a very rare bird which they called Avestruz Petise . . ." Later an "ostrich" was shot. Darwin wrote: "I looked at it, forgetting at the moment, in a most unaccountable manner, the whole subject of the Petises, and thought it was a not full-grown bird of the common sort. It was cooked and eaten before my memory returned. Fortunately the head, neck, legs, wings, many of the larger feathers and a large part of the skin had been preserved; and from these a very nearly perfect specimen has been put together . . . Mr Gould in describing this new species, has done me the honour of calling it after my name." (*Journal of Researches*)



Canis antarcticus. In Darwin's youth orthodox opinion held that every species, both living and extinct, had been separately created. He noted that the "wolf-like fox" of the Falkland Islands was "confined to this archipelago" and pondered on the distribution of so large an aboriginal quadruped in such remote islands. The alleged differences between the foxes of East and West Falkland might prove one of the facts which, he suspected, would "undermine the stability of species"

The old doctrines of the fixity of species still haunted him, though they made increasingly less sense the more he saw—both of the living species and their replacement in adjacent areas by related forms, and also of the replacement of the living species in one area by a related ancestry in the fossil remains. As the *Beagle* sailed down the east coast of South America, backwards and forwards, with long delays, owing to the exigencies of FitzRoy's meticulous survey, making new charts and correcting old ones, Darwin was free to use these opportunities for inland expeditions. There he collected and dug up prehistoric bones, filling cases with fossils and shells and specimens which the Lieutenant on board called "the Philosopher's d——d beastly devilment", accusing him of bringing more rubbish and dirt on board than any ten men. Those cases were sent back to England for future examination. Darwin used to tell

of his agony of mind on occasions when the ship could wait no longer and he was forced in haste to break off the end of some precious buried bone.

The *Beagle* did not leave the shores of the great South American continent until September 1835. These years formed Darwin's apprenticeship; hard riding and constant collecting and observing led him to a clearer knowledge of the questions he must ask: What lies behind the changes of form of living species from one area to another? What also lies behind the changes of form as affected by geological time? What are the laws of variation on which all these changes ultimately depend? As he rode over the pampas, he would see the Pichi, or small native armour-plated Armadillo, *Dasypus minutus*, squatting near its dry sandy burrows; and two other small armour-plated mammals were not uncommon. Of the Pichi he wrote:

The instant one was perceived it was necessary in order to catch it, almost to tumble off one's horse; for in soft soil the animal burrowed so quickly, that its hinder quarters would disappear before one could alight. It seems almost a pity to kill such nice little animals, for as a Gaucho (the semi-Indian guide) said while sharpening his knife on the back of one, "*Son tan mansos*"—they are so quiet.

In the cliffs of sea or river he found remains of giant prehistoric creatures of past ages, some with armour-plating like the little Pichi; and the time-scale would contract, and the connection between the massive prehistoric ancestors and the diminutive living descendants would force its way into his mind.

He gave especial attention to the birds of South America, sending home many skins; he wrote to Henslow that one species "to my unornithological eyes appears to be a happy mixture of a lark, pigeon and snipe. Mr

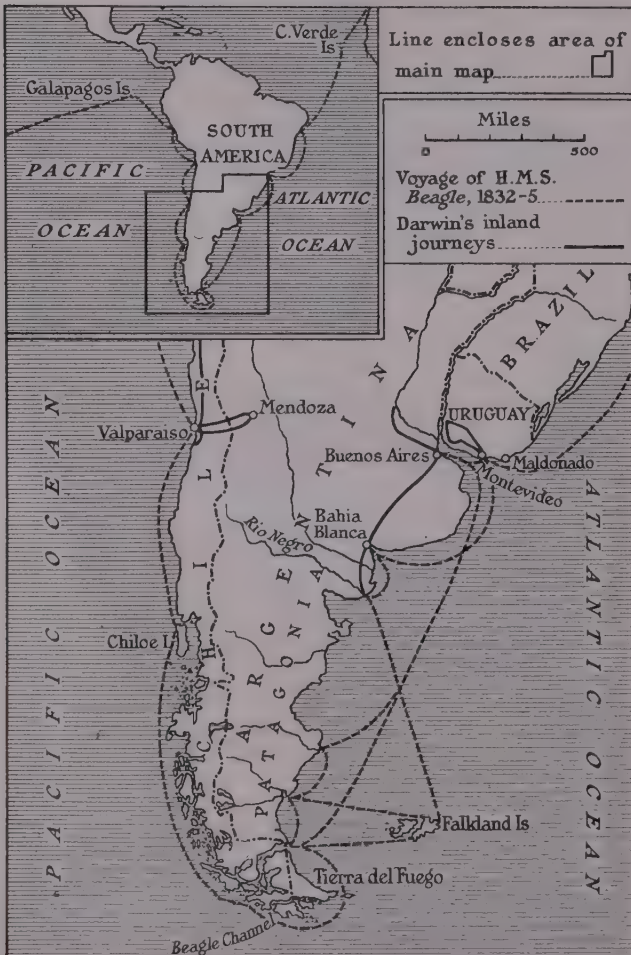
Macleay himself never imagined such an inosculating creature." It was characteristic of Charles Darwin that he not only noted the outward form of birds but also their behaviour both in song and habits—long before bird-watching became popular. He described how one thrush-like bird chose as his singing perch some high bush or tree, and we know that his mind leapt back to the English missel-thrush singing on a stormy February evening, the two related species united by a common singing stance.

The panoramic view of the species problem lay spread before him over the South American continent and his knowledge increased with his increasing collections. He never looked at any organism in isolation, but always in relation to its physical as well as to its organic surroundings, with particular notice of kindred forms; the minutest struc-

ture as well as the vast geological phenomena ever filled him with wonder and delight. He was led to seek the unity that lay behind the living species of the earth, as Lyell had shown was so convincingly the case for the unity of the global crust. Darwin was always searching for the "grand scheme, common to the present and past ages, on which organized beings have been created".

His state of mind was thus alien to that of the pure systematist; the richness of the harvest of specimens in all branches of Natural History that he sent home was astonishing, but it was not collecting for collecting's sake. His fossil and geological specimens were most carefully labelled as to their provenance; their value lay in the preservation of these labels, he kept insisting. So with his living specimens, the place and conditions in which they had lived were paramount. He knew with astounding clarity, even at this early stage, that a naturalist must know what he is observing *for*; in his own case it was to find the grand and comprehensive scheme.

He expressed something of the passionate feeling that lay behind his work when he





By courtesy of Sir Charles Darwin

H.M.S. Beagle in Jemmy Button Sound, Tierra del Fuego, in 1834; reproduced from a painting by Conrad Martens, the artist who accompanied the voyage. "Jemmy Button" was one of the Fuegians whom Captain FitzRoy was repatriating after taking them to England on a previous voyage

wrote to Henslow a few years after his return to England in answer to a comment of his friend who had suggested that scientific pursuits if wholly unapplied were of no use whatever. Darwin asked:

Must there be a practical and immediate use for each scientific discovery to make it worthy of admiration? . . . For myself I would, however, take higher ground, for I believe there exists, I feel within me an instinct for truth, or knowledge, or discovery, or something of the same nature as the instinct for virtue, and that our having such an instinct is reason enough for scientific researches without any practical results ever ensuing from them.

With such an expression of faith—for a faith it was, similar in force to the faith of the artist or mystic—he had the power that drove him to make a theory for everything he saw, tempered with an ever-present fear of over-speculation, and complete integrity and ability to reject a discredited hypothesis.

His flair for the significant, so remarkable when seen from the vantage-point of a hundred years' accretion of additional knowledge, traces back, I think, to his constant welding of the delight in detail with the grandeur of a vaster scheme.

After two years charting the eastern shores of South America, H.M.S. *Beagle* spent memorable, storm-tossed weeks amongst the channels round Tierra del Fuego, where Captain FitzRoy had a heavy and self-imposed task to perform. On a previous voyage he had taken a group of natives on board, at first as hostages for a stolen whale-boat; as they proved friendly and amenable, the Captain had taken them back to England to educate them, so that they might return later to reform the primitive tribes to which they belonged. Jemmy Button, the Captain's special favourite, who always wore his kid gloves and disliked dirtying his shoes, York

Pyrocephalus nanus, a flycatcher, was observed by Darwin in several islands of the Galapagos Archipelago. He had collected a second species of *Pyrocephalus* near Maldonado, in Uruguay, and Buenos Aires, and he concluded that these birds were migrating southward during the summer from Brazil. He was always comparing the habits of such foreign representatives with familiar European species: "The birds of this and the allied genera correspond very closely in their habits to certain of the *Sylviadae* of Europe; some of the species frequenting bushes, like the black-cap; others more usually the ground, as the robin or hedge-sparrow. Another group represent those which frequent reeds"

From *The Zoology of the Beagle*





From The Zoology of the Beagle

Tanagra Darwinii. "I saw the only specimen, which I procured, feeding on the fruit of an *opuntia* at Maldonado." Darwin's specimen was given its name at the Zoological Society's Proceedings in 1837



By courtesy of Commander John Smyth

A native of Tierra del Fuego, by Conrad Martens. Darwin was immensely struck by the difference between these "naked barbarians" and civilized men: "greater than between a wild and domesticated animal". In his Diary he said of them: "The only garment was a large guanaco skin with the hair outside . . . for any exercise they must be absolutely naked . . . I can scarcely imagine that there is any spectacle more interesting and worthy of reflection, than one of these unbroken savages"

Minster and Fuegia Basket, were now to be repatriated, together with a Missionary and a strange assortment of Victorian furniture for native use—beaver hats, mahogany sideboards, and chamber-pots; but that episode forms another story. It was an experiment doomed to failure; the thin veneer of civilization and Christianity could not bear the strain.

Darwin wrote of his first sight of Fuegians on their native soil:

It was without exception the most curious and interesting spectacle I ever beheld: I could not have believed how wide was the difference between savage and civilized man: it is greater than between a wild and domesticated animal. . . . In the naked barbarian, with his body coated with paint, whose very gestures, whether they may be peaceable or hostile, are unintelligible, with difficulty we see a fellow creature.

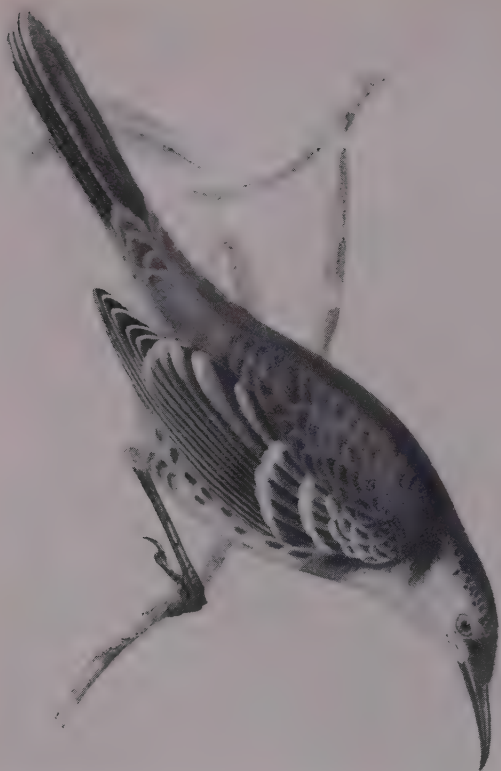
When the *Beagle* came into clear water and began sailing up the west coast of South America, Darwin's major work was, in a sense, done; yet there were still three episodes

which were like climaxes in the drama of the whole voyage. First there was the momentous journey over the Andes from Mendoza about which he wrote:

I cannot express the delight which I felt at such a famous winding-up of all my Geology in South America. I literally could hardly sleep at nights for thinking over my day's work. The scenery was so new & so majestic; everything at an elevation of 12,000 ft bears so different an aspect from that in a lower country. I have seen many views more beautiful, but none with so strongly marked a character. To a Geologist also there are such manifest proofs of excessive violence; the strata of the highest pinnacles are tossed about like the crust of a broken pie. I crossed by the Portillo Pass, which at this time of year is apt to be dangerous, so could not afford to delay there . . . I am in high spirits about my Geology and even aspire to the hope that my observations will be considered of some utility by real Geologists. I see very clearly it will be necessary to live in London for a year, by which time with hard work the greater part, I trust, of my material will be exhausted.

Darwin found that the terrestrial lizard *Amblyrynchus Demarlii*, weighing from 10 to 15 pounds, was confined to the central islands of the Galapagos Archipelago. "It would appear", he wrote, "as if it had been created in the centre of the archipelago, and thence had been dispersed only to a certain distance . . ." He watched one burrowing till half-buried, then pulled its tail; and was amused by the animal's reproachful stare when it "shuffled up to see what was the matter"





The discovery that the various islands of the Galapagos Archipelago each carried separate types of closely allied birds had a profound influence on the growth of Darwin's evolutionary ideas. He wrote in the *Journal of Researches*: "My attention was first thoroughly roused by comparing together the numerous specimens, shot by myself and several other parties on board, of the Mocking-thrushes (*Mimus*), when, to my astonishment, I discovered that all those from Charles Island belonged to one species, *M. trifasciatus*; all from Albemarle Island to *M. parvulus*; and all from James Island and Chatham Islands to *M. melanotis*"

Mimus trifasciatus



Mimus melanotis



Mimus parvulus

Secondly, his extensive work on Coral Islands lay ahead. When he reached the reefs and lagoons of the Pacific Ocean, he found corroboration for his theories—deductively arrived at—and today in the main they can still hold their own.

The third and final climax of the drama was the visit to the Galapagos Archipelago which must hold us longer, for here there is concrete evidence of how his evolutionary views were ripening. His immediate travel-notes were hastily entered in small pocket-books taken on his inland expeditions, which were subsequently amplified into his Diary, which in turn became his famous *Journal of Researches of the Countries visited during the Voyage of H.M.S. Beagle round the World*. But he also kept large note-books in which he wrote down the more specialized scientific observations—geological, ornithological, etc. In the ornithological note-books referring to the Galapagos Islands occurs this highly relevant passage:

Thenca. (*Mimus Thenca*.) These birds are closely allied in appearance to the *Thenca* of Chile. They are lively, inquisitive, active, *run fast*, frequent houses to pick the meat of the

tortoise which is hung up—sing tolerably well,—are said to build a simple open nest, are *very* tame, a character in common with other birds. I *imagined*, however, its note or cry was rather different from the *Thenca* of Chile—? Are very abundant over the whole Island; are chiefly tempted up into the high and damp parts by the houses and cleared ground.

I have specimens from four of the larger Islands; the specimens from Chatham and Albemarle Island appear to be the same, but the other two are different. In each Island each kind is *exclusively* found; habits of all are indistinguishable.

When I recollect the fact, that from the form of the body, shape of scales and general size, the Spaniards can at once pronounce from which Island any tortoise may have been brought:—when I see these Islands in sight of each other and possessed of but a scanty stock of animals, tenanted by these birds but slightly differing in structure and filling the same place in Nature, I must suspect they are only varieties. The only fact of a similar kind of which I am aware is the constant asserted difference between the wolf-like Fox of East and West Falkland Islands.—If there is the slightest foundation for these remarks, the Zoology of Archipelagoes will be well worth examining; *for such facts would undermine the stability of species.* [The italics are mine.]

Another aspect of the birds in the Galapagos Archipelago which affected Darwin's evolutionary thinking was the amazing specialization of the finches in neighbouring islands. Of this group, he wrote in the *Journal of Researches*, "there are thirteen species, which Mr Gould has divided into four sub-groups. All these species are peculiar to this archipelago; and so is the whole group, with the exception of one species . . . Of *Cactornis*, the two species may be often seen climbing about the flowers of the great cactus-trees . . . The most curious fact is the perfect gradation in the size of the beaks in the different species of *Geospiza*, from one as large as that of a hawfinch . . . and (if Mr Gould is right in including his sub-group, *Certhidea*, in the main group) even to that of a warbler"

Cactornis scandens



This clear declaration of what Darwin was seeking was written in 1835, still aboard the *Beagle*. Twenty-three years were to elapse before his first published declaration of his belief in evolution by means of Natural Selection was made, the centenary of which event is being held this year. In 1858 two papers were communicated to the Linnean Society in London by Charles Lyell and J. D. Hooker, who opened the proceedings of July 1, 1858, with these words: "The accompanying papers, which we have the honour of communicating to the Linnean Society, and which all relate to the same subject, viz. the Laws which affect the Production of Varieties, Races, and Species, contain the results of the investigations of two indefatigable naturalists, Mr Charles Darwin and Mr Alfred Wallace." The story has often been told how these two men,

working far apart and without collaboration, arrived at identical conclusions on the "appearance and perpetuation of specific forms on our planet." Natural Selection was the *modus operandi*—the missing clue that both had found.

In his *Journal of Researches*, published in 1839, Charles Darwin still remained cautious, adhering to the old concept of "centres of creation". He wrote of their first landing on the Galapagos Archipelago, when he set out and "industriously collected all the animals and plants, insects and reptiles. . . It will be very interesting to find from future comparison to what district or 'centre of creation' the organized beings of this archipelago must be attached." Only later did he begin to appreciate with heightened excitement that his collections from the individual islands were again differentiated from each other—



Geospiza magnirostris



Certhidea olivacea

that the interest was even deeper than in fitting these island forms into a continental link in the 'grand scheme'. Even in the 1845 edition of the *Journal*, he still leaves the deeper meaning of the Galapagos species with a query: "Why were they created on American types of organization?" Yet we have seen that ten years earlier he had written in the unpublished ornithological notes that the collection of such facts "would undermine the stability of species". Therein lay the germ of his life-long work.

Darwin's time was occupied on his return home in the study of his specimens and in the amplification of his specialized note-books. In this he was helped by various experts and the aid of a Government grant of £1000. The quarto volume on birds is illustrated by Gould, with descriptions by Charles Darwin; certain of these birds, so amazingly specialized in the neighbouring islands of the Galapagos Archipelago, have become famous under the name of "Darwin's Finches", and have been studied from the evolutionary point of view by later writers. Darwin described the distinct characters he found in the different islands, both for the birds and reptiles, and an astonishing state of affairs he found it.

I may observe [he wrote] that as some naturalists may be inclined to attribute these differences to local varieties: that if birds so different . . . can be considered as varieties of one species, then the experience of all the best ornithologists must be given up and whole genera must be blended into one species. I cannot myself doubt that . . . they are as distinct species as any that can be named in one restricted genus.

What kept Darwin back for so long from publication? Undoubtedly the main reason lay in his need to collect more and more confirmatory evidence; dogmatic finality was alien to his whole outlook. His first evolutionary note-book exists, *On the Transmutation of Species*, dated 1837, one year after his return from the *Beagle* voyage. From that time the fact-collecting began to extend to domesticated animals and plants, and grew to vast dimensions, and indeed continued to the very end of his life. But the voyage of H.M.S. *Beagle* was the spark that fired this powder-magazine—a supreme opportunity for a man who used it superbly. Darwin made the little sailing-vessel of 235 tons famous, and certainly she helped him to fulfil his own particular genius. Moreover he discovered something else on the voyage: that his involvement in the pursuits of Natural

History had become a necessity of his life. What he had undertaken and achieved during those five years was indeed astonishing for a novice. But he had the gift of seeing both the wood and the trees, even when the 'wood' comprised the whole continent of South America, and the 'trees' the individual rocks or specimens examined *in situ* or sent home for future study. He had to share his enthusiasm with his sisters at home:

I wish any of you could enter into my feelings of excessive pleasure which Geology gives as soon as one *partly understands* the nature of a country . . . There is nothing like Geology; the pleasure of the first day's partridge-shooting or first day's hunting cannot be compared to finding a fine group of fossil bones which tell their story of former times with almost a living tongue . . . I am much pleased to hear my Father likes my Journal; as is easy to be seen, I have taken too little pains with it. My Geological notes and descriptions of animals I treat with far more attention; from knowing so little of Natural History when I left England, I am constantly in doubt whether these will have any value. I have, however, found the Geology of the countries so different from what I read about Europe, and in consequence when compared with it so instructive to myself, that I cannot help hoping that even imperfect descriptions may be of some general utility. Of one thing I am sure; that such pursuits are sources of the very highest pleasures I am capable of enjoying.

My father used to tell a story gathered from his memories of Down House where Charles Darwin lived, dating back to about 1860. A visitor came to see Charles Darwin; my father heard that the visitor had been an officer on board H.M.S. *Beagle*—it was probably Lieutenant Sullivan, by this time Admiral Sir James Sullivan, K.C.B. The remembered conversation interested my father in connection with the development of sound-ranging in the beginning of this century. Charles Darwin asked the Admiral whether the depth of the sea had ever been measured by taking the time between a sound made at the surface and its echo from the bottom of the sea? Unfortunately my father could not remember the answer, but the story bears that prognostic ring of things to come, so often inherent in Charles Darwin's lines of enquiry. All his life he had demonstrated what he wrote at the end of *The Descent of Man*: "But we are not here concerned with hopes or fears, only with the truth as far as our reason permits us to discover it; and I have given the evidence to the best of my ability."

"You're Welcome!"

A Visit to the British Virgin Islands

by GRAHAME THARP

Mr Tharp was co-producer, with Leon Clore, of Countryman Films' colour-film, Virgin Island, which is based on an autobiographical story, Our Virgin Island, by an American, Robb White. He spent about two months in the British Virgin Islands while the film was being made and this lively description of the local people and prospects for development is a by-product of his stay

It was not until I put my leg down a hole in a temporary jetty, on leaping ashore from the launch, that I really began to appreciate Walter's sterling qualities. In a second he was beside me, helping to extricate me, thigh-deep, from my wooden trap. Concern flooded his normally taciturn face, but fortunately there was no need for it, as I emerged with but a tiny graze from a situation that might easily have meant broken bones.

Walter is one of two brothers employed by the American couple, Louis and Beth Bigelow, who built, twenty-odd years ago, and have successfully run ever since, an exclusive holiday club on their own 300-acre island, Guana. The club provides, for its generally wealthy American guests, the transportable pleasures of civilization, refrigerators, bar, electricity, while retaining in a beautiful setting the attraction of isolation from telephones and traffic. Walter and Leo skipper the launches used for collecting supplies, visiting other islands and taking guests fishing.

Of the two brothers, it was Leo with his cheerful smile who made immediate impact. I remember on a sea-trip trying to catch

something he was saying from the wheel. Although English is the common language, it has got somewhat battered in use, and to the untuned ear is often difficult to understand.

"Family," Leo said and handed me a photograph of his wife and children. It was as typical a 'family' group as one could find anywhere.

"Is your elder boy still at school?" I asked him. The boy looked about nine or ten.

Leo nodded. "But he wants to go to sea, Mr G.; wants to visit other countries and make plenty dollars."

"Don't you want him to work at the club? Don't you get plenty of dollars from the guests?"

"Not like St Thomas," replied Leo, answering my second question first—for inevitably the dollar, the U.S. dollar, the practical currency of the B.V.I., is the uppermost thought in the mind of the Virgin Islander.

"Why do you stay here, then?" I asked.

He shrugged his shoulders. "Good job," he said. "My home's East End, two-three miles away. When ah was a boy, no British





All photographs from the author

The hub of Road Town, capital of Tortola, the largest of the British Virgin Islands, is the jetty. From here mail-boats (launches) make the two- to four-hour journey to Charlotte Amalie, capital of St Thomas in the American Virgin Islands, the nearest point of contact with the outside world

Virgin Islander could work in St Thomas for longer than short time. So people go to work and come back again; wait for the time to pass, go back and work again for short time. Make more dollars than in Tortola, but, for man with family, no life. Now American law's changed—work for whole year if you want. Last year nine hundred people went St Thomas to work in hotels, houses, yachts, plantations."

"Do they like St Thomas better than Tortola? Do you, Leo?"

"No, Mr G., too noisy, and home's home. But young people do: see more on St Thomas, more life, more dollars. And, funny thing, sometimes same thing cheaper there."

"Oh, what sort of thing?"

"Vegetables cheaper because scarcer in Tortola—because young people not willing

work on land. And other things."

Ahead was the harbour of Charlotte Amalie, to which Louis Bigelow was taking a number of us to collect supplies.

"Going shopping, Mr G.?" Leo grinned at me.

"If there's time," I answered; "though I must watch the dollars! What about you?"

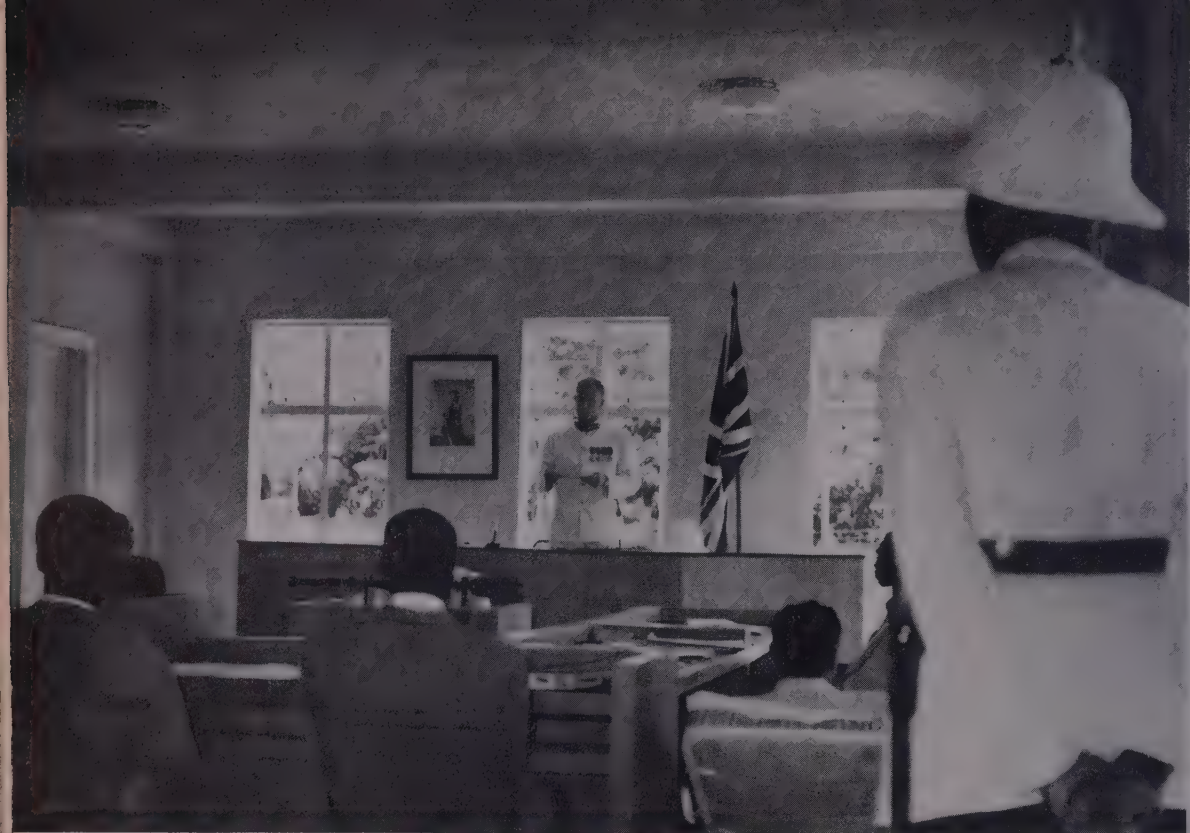
"Plenty friends to see and relations—my sister works in the Yacht Harbour restaurant. Make them spend their dollars for me!" Leo said with an even broader grin.

It didn't sound like a visit to a foreign country, although St Thomas is American territory and we had just come from a British Colony. But that is the way of the Virgins. The British islands are so bound up with the American islands in trade, work and social connections that laws have had to be



(Above) *The Parhamtown*, an island trading-ship. Manned by a captain and crew of six, she was built, without blue-prints, at East End, Tortola, in 1957 in the distinctive local style. Tortolan trading-ships usually run between Road Town and Charlotte Amalie, Puerto Rico or Antigua, carrying cargoes as varied as a department-store—gasoline, timber, cement, fruit or manufactured goods—and taking out mainly cattle, vegetables and other produce. (Right) Maxwell Lettsom, captain and part-owner of the *Parhamtown*, lives at East End near the yard where his boat was built. The island merchantmen and fishermen are a cheerful, friendly lot and skilful sailors in waters made dangerous by rocky coasts and coral reefs. Sometimes all shipping is island-bound for days, since though during most of the year the trade-winds blow steadily, distant storms and hurricanes throw their influence far







(Opposite, top) Mr Geoffrey Allsebrook, the Administrator of the British Virgin Islands, addressing the newly elected Legislative Council (chosen annually by popular vote) in the Law Court and Council building at Road Town.

(Opposite, bottom) The police-force lined up for inspection by the Administrator before the opening ceremony. There are less than 8000 people in the B.V.I., of whom only about twenty are Europeans. Some four-fifths of them are concentrated on Tortola, the remainder being spread over eleven of the thirty-six islands.

(Above) A Tortolan fisherman weighing part of his catch for a customer on the jetty at Road Town. Fishing is one of the principal contributions to the economy of the B.V.I., among the most valuable products being fish-meal and shark-oil. There is a government loan fund to help fishermen to buy outboard motors.

(Right) The quality of cattle in the B.V.I. is high, owing to a positive government policy of agricultural grants and the establishment of a government farm to improve the island stock by means of pedigree bulls from England



relaxed to make sense of what was an *Alice through the Looking-Glass* situation.

Later, on the way back, I asked Leo, who had always worked for Americans, whether he would like to be American. He thought for a moment. "Like my sons American," he said; "get work with good pay then, man, maybe in U.S.A. But ah'm British, like you, long time. I like our Queen-lady, but she's never been to see us. Will she come one day?"

Was he an incurable romantic or just being exceptionally polite? Politeness is a characteristic of the Virgin Islands: "You're welcome!" is the most regularly used phrase.

I explained that when the Queen travels she has so many people to look after her there would be nowhere for them to stay.

"Mr Allsebrook has fine house, he look after her fine."

Government House is big by present Tortolan standards, though it probably wouldn't have measured up to the houses of the plantation-owners in the heyday of the V.I. before the collapse of the plantations in the 19th century, following the West Indian sugar crisis and the emancipation of the slaves. Some ruins can still be found on the

islands. There was also an interesting Quaker influence, through their early settlement in the islands where Quaker names still flourish.

Today, is this influence, which so impressed itself on the islands from 1727 onwards, still to be found? I wondered some days later as I watched Walter, Leo's brother, at the helm of the smaller launch in which I usually went on my visits. Walter and Leo were always punctual. If a launch were wanted, it would be ready on time. I wondered if this was due to their training at Guana, but that was before I met Captain Lettsom. Walter took me to meet him at East End, which runs in straggling village fashion round a sheltered bay. We walked along the dirt road under the occasional palms. Cheerful, dark faces watched us from open doorways and windows, or from makeshift fences—for many of the one-storey houses were within their own patch of ground. In the sing-song, almost Welsh intonation of the V.I., Walter called:

"Max Lettsom here, man?"

A voice answered: "Yeah, man, up at the yard."

He was there and Walter introduced me. We sat down under the shade of a big tree.

A group of family houses at East End, one of the two main settlements on Tortola. As can be seen here, new, well-built stone houses occasionally stand out from the surrounding shacks of the village





A wedding at Road Town. On such occasions the men are well turned-out and the girls appear in attractive dresses: butterflies that do credit to their rather unpromising Tortolan chrysalises

Beside us two boats were being built, one barely more than keel and ribs, the other almost ready to take the water. I asked Captain Lettsom if his ship was built at this yard. He nodded. "Built here this year," he said.

"She's a fine ship."

"She's well built," he answered. "People send to Tortola from as far away as Antigua to have their boats built."

"Captain Lettsom, I'd be very happy if we could use your fine ship in our film—with you and your crew. Can you come to Guana on Friday for us to see your ship under sail, and fix the date of the filming?"

"Yeah, man, I can do that; don't have to go to San Juan till next week," he said.

"Good man, about eleven o'clock, then," I replied. I thought it might take a lot of haggling to arrive at a reasonable figure for the hire of his ship, himself and crew; but

no, he named a fair price right away. We parted with a friendly handshake, arranging to meet at Guana two days ahead.

On Friday morning, I looked towards Tortola from the club-house perched on the top of Guana. The prospect was fair; the bluest of blue seas joined the islands, with the white beach below. Overhead, white clouds, photographers' dream clouds, scudded on the trade-winds.

"It's no good looking out to sea," someone said. "If you said eleven o'clock he won't be here till lunch-time tomorrow—you know what these natives are!" The man who spoke had recently worked in Africa and had not yet shed the mental carapace formed there which still shaped his attitude to life.

"We'll see," I said, for Walter and Leo were not the only Islanders to impress by their reliability and helpfulness; and I sat down to breakfast on the terrace with some

of the forty film technicians and artists who were here with my co-producer and myself to make our film, *Virgin Island*. Before I had finished my second cup of coffee, a stray glance to the channel revealed the splendid picture of Max Lettsom's ship, under full sail, making towards our anchorage.

A week or so later I was talking to Captain Wagner, a Pole who served in the British Merchant Navy, now the owner of a club and holiday-centre for tourists at Trellis Bay on Beef Island. During our conversation I glanced to a small island a mile away on which we were shortly due to film. Lettsom's ship was already anchored off it, a day early, ready for filming.

I asked Captain Wagner if he found other Islanders as reliable. "Well," he said, "they vary. I deal mostly with labourers on the construction of the landing-strip and my houses. They need driving. But labourers do anywhere," he added; "some are good workers if you show them what to do."

"You've got a lot to show them, haven't you?" I said, for Captain Wagner, apart from running a yacht-repair yard, was extending his club by building holiday cottages on the island and was also completing the airstrip for the government. He drew in a big way on the local labour reserve, apart from domestic help, and was training shipwrights, engineers, etc., for his yacht-repair yard.

"I can see good possibilities in these islands," he replied. "I've turned down some pretty big offers for my property here. When this landing-ground is ready for bigger planes, we shall get many more tourists. And when they see my cottages, they may stop for a while and spend some dollars here instead of in St Thomas!"

I asked whether the development projects of Sir Alan Cobham of the same kind as Captain Wagner's would upset his plans.

"Oh no," Captain Wagner answered. "Anything anyone can build will help these islands. Why, do you realize when I came here a few years ago, there was only the Bigelows' club and the small hotel at Road Town? There was practically nowhere to stay if you did come as a tourist. Now, there's my club, a new hotel at Road Town, almost built, and Cobham's plans. These islands have got all the things tourists need except facilities: good fishing, lovely beaches, fine swimming. We can never compete with Charlotte Amalie in luxury hotels, night-clubs and shops, but we can appeal to people who want a little less chromium plate in their lives. But development'll take time, and it'll

need encouragement, a lot of encouragement."

I looked round the bay. The first of his cottages, built in local stone, was in use and the foundations of others laid.

Captain Wagner turned to me.

"Isn't that your taxi?" he asked.

I looked across to the head of the track by the airstrip. Yes, a Land-Rover was drawn up by the jetty.

"See you later," I said and waved a greeting to the tall, languid figure of the driver lounging amongst the palms on the shore.

Antrim was taking me to Road Town; once over the ferry and safely on Tortola, we jogged the few miles along the one main road, already metalled in places but villainous in others, that ran beside the shore to the capital.

As we passed the occasional house or group of houses, I looked at the unyielding, scrub-covered hillside and wondered how the families managed their struggle with the soil or the livestock so many of them reared. Maybe they had a fisherman in the family; and they were bound to have some son or daughter doing his stint in the A.V.I. A curiously unbalanced situation unless you regard the B.V.I. as the rural area and the A.V.I. as the urban magnet.

When we came to the outskirts of Road Town, I saw a small donkey approaching us down the road, bearing on its back a small boy balanced between two pannier barrels. It was an attractive young donkey with that almost teddy-bear look young donkeys have.

"Antrim," I said, "do you think we can hire the donkey—and the boy—for our film? We need a photogenic beast and that's it."

Antrim stopped the Land-Rover and waited for the donkey to come level.

"Want to work for the picture people?" he asked the boy, who stopped and looked up at us uncomprehendingly.

"Got to get water," he said and paused, serious and uncertain.

"You can get your water," I chimed in; "it's not for today but another day. Look, I will pay you well if we can use your donkey in our film." I held up a few dollars—probably more than he had ever seen together at one time in his life.

"Got to get water every day," he said—this nine-year-old midget from the top of his diminutive steed.

"No good, Mr G., man," Antrim said, as I was about to argue. "He comes from the hills."

There is just one commodity more valuable than dollars and that is water. There are no rivers on the islands; water is an ever-present

The steel band has become one of the symbols of the West Indies. Its haunting sound is heard in American luxury hotel and native café. These drums belong to one of the Tortolan steel bands, The Buccaneers, whose members are mostly schoolboys; some have recently left school. They appear in the film Virgin Island in which Sidney Poitier, here seen handing a drum ashore, plays the part of a fisherman. One of the foremost American Negro film-actors, he was born in Miami and educated in the Bahamas





Captain Wagner, a Polish-born ex British Merchant Navy man, is one of the pioneers in the development of the B.V.Is. for tourists. Among his enterprises are a club and the airstrip on Beef

problem. A few wells, an occasional spring, catchment-areas on the side of a hill or the roofs of houses are the only sources. So serious is the problem that the government will even make loans for the building of cisterns to store water from roofs.

Government House rose solidly and not unbecomingly from the hillside. The Administrator's party was under way in the steeply sloping garden. Guests ranged from members of the Legislative Council, amongst whom I recognized several Road Town tradesmen, to European visitors like ourselves. The Administrator introduced them and his officials.

"I hope we can help you film people to get what you want," he said. "I don't think you'll find it easy, though it'll be better for you now we've got the radio-telephone link with St Thomas and the airstrip working. I'm glad you've chosen these islands—at least I shall be if you spend here some of those sums I read about in film-production!"

He didn't know then—and frankly nor did we—that the sum we were to have to spend in the Virgin Islands (both in the British and

the American, but largely in the British), to provide accommodation, boats, hire labour, buy materials and all the paraphernalia of film-making, roughly equalled 'one-half of the total of the grants provided last year by the British Government for the development and administration of the islands.

What is the future of the B.V.I.? Will they become part of the American group, resolving the artificial socio-economic division, or will they struggle on, receiving from Britain something like \$15 per head per annum in grants to stimulate fishing, agriculture, education, health, etc.? A sum pitifully inadequate for local needs, and one that merely earns for Britain the reputation of miserliness—as the B.V. Islanders have so very close at hand for comparison the example of American Government spending.

A schoolgirl tentatively offered me a cocktail sandwich. I took one, smiled at the charming and friendly Tortolan face surmounting the neat blue uniform of the government co-educational secondary school, and thanked her.

"You're welcome, sir," she said.